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## VALUE OF PNEUMOPERITONEAL ROENTGENOGRAPHY IN OBSTETRICS AND GYNECOLOGY

### BASED ON AN EXPERIENCE OF MORE THAN THREE HUNDRED CASES *


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Roentgenographic examination of the female pelvic organs after gas inflation has been rather extensively employed during the last eighteen months in the clinic of obstetrics and gynecology of the University of Michigan Hospital. Previous reports on this comparatively new diagnostic method purposely dwelt on the technic of the procedure as it has been developed in this clinic. It was felt that first of all it must be determined whether transuterine and transabdominal gas inflation under proper aseptic technic is attended by dangers serious enough or so unavoidable as to preclude gas inflation as a justifiable or practical diagnostic method in obstetrics and gynecology.

As case after case was added to the list under the technic employed without the slightest peritoneal irritation resulting, it was felt that the safety of the method had been established beyond the shadow of a doubt. Naturally, the next question to be answered, as clinical material has accumulated, is the value of gas inflation as a diagnostic procedure. In what proportion of cases is it of real value in establishing or confirming the preoperative diagnosis? In short, is this new procedure a fad and therefore transitory, or is it a valuable aid to pelvic diagnosis, not to be depended on alone but as a help in making the diagnosis of pelvic conditions more accurate, so that the physician is in a better position in a given case to decide on the line of treatment to be employed? It is to answer these and other interesting questions connected with gas inflation, that the present attempt has been made to draw conclusions from certain groups of the 325 patients in whom inflation was performed for various reasons from July 1, 1920, to Dec. 1, 1921.

Obviously, since the only way of determining the correctness of diagnoses arrived at by bimanual examination and the roentgen ray is by direct palpation through an abdominal incision, only those patients operated on after gas inflation can be considered. Of the 325 patients subjected to pneumoperitoneal roentgen-ray examination, 152 were operated on through the abdomen. In fourteen cases, for one reason or another, excessive or uncontrollable moving of the patients, too little gas in adipose patients, etc., the roentgenogram from a technical standpoint was so poor as to be worthless. There remain 138 cases in which the clinical and roentgen-ray diagnoses were carefully made and recorded prior to operation.

Before judging the value of the pneumoperitoneal roentgenogram as an aid to preoperative pelvic diagnosis, it will be well to state just how these roentgenographic diagnoses were made, and to set forth the criteria adopted in arriving at decisions as to whether the diagnoses were correct or otherwise. As has been explained at some length in previous communications, the rule of the clinic has been to use the transuterine gas inflation route whenever possible. It was felt that, aside from the question of sterility, it was of the greatest practical interest in every pelvic case to be able to state definitely whether the fallopian tubes were or were not permeable. However, no chances are taken to determine this fact. Whenever there is a history of acute pelvic infection, or in the presence of a bloody or purulent uterine discharge, the transuterine route is decided against and the gas is injected by the transabdominal route.

To show the conservatism of the clinic in this regard, out of the 138 operative cases after gas inflation, the gas was introduced seventy-three times through the abdomen as an elective procedure. In forty-three cases the gas was passed through the uterus and tubes in quantities sufficient for roentgen-ray purposes. In twenty-two cases the transuterine route failed, and the gas was injected through the abdominal wall.

The routine of gas inflation is as follows: A careful history is taken of each patient. There have been no exceptions to this rule, since the determination of the route for gas inflation depends largely on the history. Whenever there is a history of acute or subacute pelvic inflammation, since it is the rule not to subject such patients to transuterine gas inflation, it is carefully considered whether such a patient is suitable for even transabdominal gas inflation. If the pelvic inflammation is acute, it is deemed a case unsuited for any form of inflation. If it is one of subacute pelvic inflammation, if there is no rise of temperature or pulse rate after a bimanual examination, transabdominal gas inflation is resorted to in the large majority of cases.

While it is not believed that there is any particular danger of forcing the contents of the fallopian tubes into the pelvic cavity by gas inflation under moderate pressure, to be on the safe side, as stated before, transuterine inflation is ruled out in the presence of profuse purulent uterine discharges, and when there is a hemorrhagic discharge from the external os.

No patients with serious circulatory changes have been inflated. Even when moderate amounts of gas


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are introduced into the abdominal cavity, it can readily be seen that the sudden rearrangement of the abdominal organs resulting from the gas inflation, together with upward pressure on the diaphragm, might well embarrass a diseased and badly acting heart, and possibly give rise to alarming symptoms, if not leading to fatal results. For the same reason, great care has been taken not to use gas inflation in the presence of large uterine or ovarian tumors. Not only might the presence of the gas produce the symptoms just referred to, but in reality there is very little to be learned from the pneumoperitoneal roentgenogram under such conditions.

The greatest care is used in the presence of suspected bowel adhesions to the abdominal wall. Either a site reasonably certain to be free from such adhesions is selected for the abdominal puncture, or the case is deemed unsuitable for transabdominal gas inflation. In short, every case is critically gone over pro and con prior to gas inflation; and, if there is any doubt, the procedure is decided against and the patient is operated on without the inflation.

At the beginning of our work with the pneumoperitoneal roentgenogram, Dr. Van Zwaluwenburg and I agreed that we would work out our diagnoses independently. This arrangement was entered into deliberately, since neither the clinician nor the roentgenologist desired to be influenced by the other's opinion so far as diagnosis was concerned. This was hardly fair to either, but was particularly unfair to the roentgenologist, who, without the specialist's knowledge of pathologic conditions of the pelvis, attempted to interpret what he saw on the roentgen-ray film. As will be shown later in reviewing the roentgenographic diagnoses, it was remarkable in what proportion of cases, as shown by subsequent operation, correct diagnoses were made by Dr. Van Zwaluwenburg, working in practically a new field and with no knowledge of the clinical histories of the cases.

The details of vagino-abdominal and recto-abdominal examinations without anesthesia were carefully recorded and the tentative diagnosis made for each of the 138 patients subsequently operated on. An attempt was made to have these preoperative diagnoses very accurate. For instance, the size, position and movability of the uterus were recorded. The same was done with the appendages. If for any reason it was impossible to palpate either ovary or tube, it was so stated, and the same with adhesions. Such indefinite terms as "pelvic inflammatory," "tubal masses" and "thickened broad ligament" were discarded in favor of accurate findings and diagnoses.

The roentgen-ray report was sent to the departmental office and studied in connection with the recorded physical findings in a given case. It was then decided whether or not the case called for operation. If the case was operative, the patient was always carefully examined under anesthesia and these findings were recorded. This is only fair when accurate determination of the pelvic contents is being attempted, since in so many instances in a certain class of patients, rigid abdominal walls prevent satisfactory pelvic examination. However, it is well to bear in mind that the roentgen-ray report was not allowed to influence the examination under anesthesia, so far as the findings were concerned. If an ovary or tube could not be felt, or if it was determined that no adhesions existed, it was so recorded.

In order to compare the clinical with the roentgen-ray diagnoses, the most difficult class of cases from the diagnostic standpoint has been selected for comparative study. Of the 138 operative cases there were fifty-four of salpingitis with adhesions, and these have been carefully analyzed. It must be borne in mind that in stating that diagnosis is difficult in this particular disease of the pelvis, the word is not used in its ordinary sense. Clinically it is not at all difficult to determine whether or not a patient has salpingitis or probably has the condition. Especially is this true in severe types of the disease in which the uterus is immovable or its movability is impaired, when there is distinct inflammatory thickening at one or the other side of the uterus. Minor degrees of tubal enlargement, with or without adhesions, may or may not be felt by the examining finger. From experience with hundreds of cases, verified by subsequent laparotomy, the gynecologist may judge that the tube and possibly the ovary is affected; but in many cases the examining finger is absolutely unable to outline these organs, which are backward in the pelvis and to one side and covered with plastic lymph. In quite a percentage of cases such a condition exists on one side, while the tube is enlarged and adherent and easily palpated on the other.

So difficult has been the differentiation of the appendages or portions of the appendages in certain types of inflammatory disease of the pelvis that in many instances it is not attempted at all, but accurate diagnosis is reserved until the pelvic contents can be palpated through the abdominal incision. Now it cannot be denied that such a course is one of intellectual cowardice. It is dodging the question of preoperative diagnosis because of attendant difficulties which the gynecologist should strive to overcome, if possible.

The clinical diagnosis in relation to the fifty-four cases of tubal disease relates to this more accurate preoperative diagnosis, and should be considered in this connection; otherwise it would be inexcusable for the specialist to fail to make a diagnosis in such a large percentage of the cases. In other words, failure does not mean that the clinician did not know he was dealing with pelvic inflammation, but that he failed in part to state definitely what organs were affected by the inflammatory process.

In fifty-four cases of salpingitis with or without adhesions, in the sense defined above, the clinical diagnosis was correct thirty-three times, or 61 per cent. of of the cases. In seventeen cases it was partially correct, and in four cases it was incorrect in that no inflammatory tubal disease was found prior to the operation. Turning to the roentgen-ray diagnostic side of the question, it was found that, in the type of pelvic disease under consideration, tubal disease was correctly diagnosed twenty-four times, or in 44 per cent. of the cases. In twenty-one cases out of the fifty-four patients with salpingitis, or 39 per cent., the roentgen-ray diagnosis was partially correct, while in nine cases, or 17 per cent., it was incorrect.

It seems to me that, all things taken into consideration, this is a very creditable showing for this new aid to pelvic diagnosis, and holds out great hope for greater accuracy in the future, since these statistics were made up from all operative cases of salpingitis with adhesions when the roentgenologist had to feel his way in making a diagnosis. Again, great improvement in diagnosis may be expected from now on, since the future plan of the two departments will be to furnish all factors in the cases before the final diagnoses are made prior to operation. For example, the clinician provided with the history of the case plus the bimanual findings goes over the film with his roentgen-ray colleague and aids

in the interpretation. In one instance he will point out that there is no history of inflammatory pelvic disease, and that the shadow seen low down in the pelvis is probably a cystic ovary and not salpingitis with adhesions; again, that the uterus which is enlarged and backward probably is not due to pregnancy since no menstrual period has been missed.

It is well to call attention to the fact that even as the roentgen-ray diagnosis has improved and will still further improve with added experience, the clinical diagnosis, even under the rigid conditions laid down for correctness in diagnosis, has improved nearly 10 per cent. in the last twenty cases under analysis. This demonstrates how valuable is the pneumoperitoneal roentgenogram in that a study of the films in conjunction with careful bimanual examinations leads to better interpretation of the next case by the examining finger.

It may be urged that such refinements of diagnosis are hardly necessary, since an abdominal incision will clear up all doubts. A little consideration will show this reasoning faulty, and especially unfair to the patient. An exploratory laparotomy may be comparatively free from danger, but not entirely so. The physician is in duty bound to save his patient from unnecessary pain, anxiety and expense, and thus should welcome any additional aid to diagnosis.

The well known fact that, in a certain percentage of cases, the ordinary methods of pelvic examination fail to reveal certain types of pelvic disease causes the examiner to hesitate and take the easiest course, exploratory laparotomy, in the presence of pain or other lower abdominal symptoms—this, even when he can find nothing and really feels there is nothing pathologic in the pelvis. If his negative pelvic findings are supported by a pneumoperitoneal roentgenogram showing normal pelvic contents, he will refrain from a useless exploratory operation and seek another explanation for the existing symptoms.

At least, this is the trend of our practice in the clinic since the advent of the pelvic roentgenogram. In fact, it has been found that this new method of diagnosis has been of the utmost service in doubtful cases, when something is felt by bimanual examination but not enough to make one positive as to diagnosis; when nothing, or practically nothing, is palpated, but the roentgenogram discloses a distinctly pathologic condition; in short, in those cases in which one would gladly palpate through an abdominal incision in order to arrive at a correct diagnosis. The pelvic roentgenogram plus the careful bimanual examination is the next best thing to this direct palpation, and in time, with added experience, may be almost as effective.

A case illustrative of what is meant is being investigated as this paper is written. A woman, aged 21, healthy, in fact an athlete, has noticed for the last year something wrong low down in the right side. She has never had a vaginal discharge, or abdominal pain and fever. Examination reveals an unruptured hymen, no signs of infection, and a normal sized uterus in good position, but of somewhat limited mobility. The left ovary is of normal size, slightly movable, the tube not palpable. In the region of the right tube and ovary and behind in the culdesac to the right of the median line is an irregular, adherent mass not particularly sensitive and not well definable on account of the rigidity of the abdominal walls.

Formerly this patient would have been informed that she had a pelvic mass, that she should be operated on, and that the exact diagnosis would be made after the abdominal incision had been made, in spite of the fact that this particular patient, because of the probability of marriage in the near future, has every reason to demand that the condition of her pelvic organs and the extent of the operation be told her prior to the abdominal incision.

In this particular case the pneumoperitoneal roentgenogram revealed the irregular mass on the right, adherent to intestinal coils, presumably the tube and ovary, since these organs gave no shadow. The left ovary and tube were enlarged and adherent. The roentgen-ray diagnosis was bilateral salpingitis, more marked on the right side.

The patient has been informed that she has trouble with both appendages, more marked on the right; that she may and probably will have to sacrifice the right tube and ovary, but that part of the left probably can be saved. While all the facts in this particular case have not been ascertained by clinical and roentgen-ray diagnostic methods, for there is no history of pelvic infection further borne out by the unruptured hymen, the condition of the appendages is well enough known to permit an intelligent discussion of the case with the patient prior to operation.

The pneumoperitoneal roentgenogram has been extremely valuable as an aid to diagnosis in early cases of pregnancy—from the sixth to the ninth or tenth week. In these early weeks of pregnancy, the expert examiner may detect enlargement and softening of the uterus, but he is very loath to say more than that he suspects pregnancy or that the condition is very suspicious of pregnancy. Especially is this true if skipping of the period is admitted. His suspicions are made quite positive if the pneumoperitoneal roentgenogram reveals an enlarged uterus and isthmus. In eight cases of pregnancy from the sixth to the tenth week, the condition was positively diagnosed by the roentgenogram without knowledge of the history or the vaginal examination findings. In each instance the diagnosis was confirmed by the subsequent history.

The roentgen-ray picture of early pregnancy shows almost uniformly an enlargement of the isthmus, the cross-section of the uterus at a point corresponding with the lower uterine segment. Not only is the isthmus enlarged in the long axis of the uterus, but it is shown to stretch out on the sides toward the broad ligaments. In pregnancy advanced more than ten weeks, this thickening of the isthmus is very marked, so that beyond the tenth week pregnancy can invariably be recognized by the pneumoperitoneal film at a time long before the fetal bones can be demonstrated. This diagnostic sign is especially valuable in cases of fibroids complicated by pregnancy. Again, the absence of the sign is valuable in demonstrating the nonpregnant uterus, when menstruation ceases at the menopause, giving rise to great mental disturbance in patients who have been exposed to and fear pregnancy.

Time does not permit a description of other pelvic conditions, such as fibroids with and without diseased appendages, small plevic growths, unruptured ectopic pregnancies, etc., in which the pneumoperitoneal roentgenogram has proved invaluable as an aid to diagnosis. It is realized that this work is just beginning, and that the interpretation of such films will improve as they are numbered by the thousands instead of by the hundreds. Even at the present stage of the study, the pneumoperitoneal roentgenogram has become an invaluable aid in the clinic, and would be dispensed with only with the greatest reluctance, aside from the indispensable aid of pneumoperitoneum itself in deter-

mining the patency or nonpatency of the fallopian tubes in cases of suspected or actual sterility. However, this is another subject and will be left for subsequent discussion.

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## TUBERCULOUS EMPYEMA

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It is generally conceded that the tubercle bacillus can produce a purulent effusion in the pleural cavity—a purely tuberculous empyema—and it may be assumed, for practical purposes, that there is always an underlying lung tuberculosis. These two considerations being granted, the contraindication for open drainage in the treatment of these cases is obvious. In many instances, other organisms are associated with the tubercle bacillus in the pleural fluid: mixed infections; but the underlying pleural and pulmonary tuberculosis still constitute a strong contraindication to thoracotomy.

The resection of one or more ribs to facilitate drainage of the thoracic cavity was brought into general use by König in 1872. The mortality of empyema was at once materially lowered by rib resection, and it is not surprising that this operation was believed to be indicated whenever pus was found in the pleural cavity. In the course of the next twenty years, objections began to appear from many observers to the use of open drainage in empyema occurring in patients with pulmonary tuberculosis. It was found that the pleural cavity failed to close; that a sinus persisted, and that the tuberculosis in the lungs frequently became more active and progressed rapidly to a fatal termination. Even if this did not occur, chronic suppuration almost invariably continued indefinitely, extensive thoracoplastic operations being required in attempts to obliterate the rigid and infected pleural cavity. Fowler [1] recorded the growing dissatisfaction with this situation, stating that "Franzel, Fielding and Senator entirely discountenanced thoracotomy and rib resection in tuberculous cases, preferring repeated puncture." Since then, the indications for open drainage of tuberculous empyemas have been gradually but markedly restricted.

The bacteriology of thoracic empyema came in for early study both by cultures and by stained smears; but as the tubercle bacillus did not grow with ordinary culture methods and was often hard to demonstrate in the smear, it was frequently overlooked. In Lord's [2] series of purulent effusions, 18 per cent. were noted as sterile; and although it was recognized that many of these cases were probably tuberculous, even the approximate number was not indicated. Calmette states that tubercle bacilli are not numberous in tuberculous empyema, while Letulle notes that they may be present in inconceivable numbers in this condition. The general expression in the literature indicates that while the tubercle bacillus is often difficult to find in the serous effusions, they are more numerous and more easy to demonstrate in the purulent cases. This coincides with our experience. Repeated search should show them in most instances. The literature on the pathology of tuberculous purulent effusions is very limited. Peron [3] describes empyema tuberculosa, and Calmette,[4] in his recent work, writes of cold abscess of the pleura, associating it with destructive tuberculous lesions elsewhere in the body. Letulle,[5] in a very clear account of tuberculous empyema, describes the character of the pus and of the deep infiltrating caseous lesions found with this exudate, and ascribes to it a bad prognosis. The determining factor in producing a purulent rather than a serous exudate, containing only tubercle bacilli, is probably to be found in the amount of infectious material suddenly poured into the pleura, as would occur with the rupture of a caseous focus. In other words, the question appears to be one of dosage.

Assuming a purulent effusion of the pleura, not definitely metapneumonic or postinfluenzal, the greatest care should be used to exclude tuberculosis before instituting open drainage, since cases of empyema showing no tubercle bacilli almost universally heal promptly, while those having tubercle bacilli rarely do so. Careful and repeated search for tubercle bacilli in the pleural fluid and also in the sputum should be made. The lungs should be carefully examined and the past and present history considered with the possibility of pulmonary tuberculosis. So-called sterile pus will, of course, be considered a strong indication of the tuberculous nature of the effusion; but the presence of pus organisms does not necessarily argue against a tuberculous basis. The demand for immediate open drainage in empyema is rarely so great as to preclude sufficient time for such investigation. Even in the most careful hands, occasional mistakes are made. The sputum is negative for tubercle bacilli; the aspirated pus is negative for tubercle bacilli; the pleura is drained, but fails to close. Tubercle bacilli later are found in the discharge.

Cases which are purely tuberculous may develop in various ways. They may begin insidiously, coming to light in the course of routine examinations. As Babcock [6] stated some years ago, "A consumptive may be none the worse for carrying about a pint or more of innoxious pus in his pleural cavity." An effusion which at first is found to be serous may be found after one or more tappings to have become seropurulent and later purulent. Such an event may develop in the course of artificial pneumothorax treatment of pulmonary tuberculosis.

The introduction of artificial pneumothorax has added materially to our knowledge and experience with tuberculous empyema. Serous effusions eventually occur during the course of artificial collapse in the majority of instances, and approximately 5 per cent. developed purulent effusions. Many of these are the direct result of lung rupture, and not infrequently are converted into the spontaneous type of pyopneumothorax.

Artificial pneumothorax has taught us that, first, a diseased lung can be collapsed with benefit and should be reexpanded with great caution, and, secondly, the development of a turbid or even purulent effusion in the course of a pneumothorax treatment is not necessarily serious, and this condition can best be met by aspiration and replacement by air. The rupture of a caseous focus of the lung or bronchial glands, rich in bacilli and toxins, results in a stormy onset with high

1. Fowler, G. R.: Thoracic Surgery in Tuberculosis, Ann. Surg., 1896, p. 541.
2. Lord, F. T., in Osler's Modern Medicine, Philadelphia, Lea & Febiger **3**: 833, 1907.
3. Quoted by MacCallum, W. G., in Osler's Modern Medicine **3**: 222, 1907.
4. Calmette, A.: L'infection bacillaire et la tuberculosa, Paris, Masson & Cie, 1920.
5. Letulle: La tuberculosa pleuro-pulmonaire, Paris, A. Maloine et Fils, 1916.
6. Babcock: Diseases of the Lungs, New York, D. Appleton & Co., 1907, p. 512.

fever and great toxemia and the fairly rapid development of a purulent tuberculous effusion. Whatever the mode of development or course of infection, provided the purulent effusion remains purely tuberculous, there are no indications for open drainage. These cases should be treated by aspiration, to be repeated as frequently as necessary, with simultaneous replacement by air to protect the underlying lung. In pyopneumothorax with open bronchial fistula, the same method should be used, preserving a neutral intrapleural pressure to give the opening into the bronchus an opportunity to close. No good can accrue to the patient by adding a secondary infection, as must inevitably occur if a trochar or tube is used for permanent drainage.

In tuberculous empyema with mixed infections—the indications for treatment are clear, but, unfortunately, they cannot always be met. The secondary infection should be combated if possible without open drainage. We must admit, however, that our efforts in this direction will not always be successful. The presence of a mixed infection in tuberculous empyema when no bronchial fistula exists is no indication for open operation.

Aspiration with replacement by air, repeated as frequently as necessary to keep down the effusion and limit the absorption, will not infrequently control the secondary infection. It should always be given as thorough a trial as the condition of the patient will permit. The importance of the outcome of the tuberculous lesions must never be lost sight of. When a definite bronchial fistula exists and does not close after neutral pressure has been maintained for some time, we are forced either to allow the patient to die within a few days or weeks, or to drain openly and, by so doing, prolong life, but fully expecting the drainage to continue throughout the existence of the patient. If such drainage is instituted, it is preferably done with the smallest amount of trauma (trochar and catheter).

Not much need be said of technic. Replacement of the pus withdrawn by air is essential, unless a permanent bronchial fistula exists, to maintain lung collapse, and prevent pain and shock. The pneumothorax outfit should be used for this purpose. A small needle has the advantage of limiting the danger of infecting the needle track (tuberculoma), but must, of course, be large enough not to block. Particular care should be taken to determine definitely by the manometer during the aspiration whether or not a bronchial fistula exists. This should be tested on every possible occasion, as these fistulas, it is well known, are liable to be closed at one time and open at another. Adolph Meyer reported a case before the National Tuberculosis Association in 1920 of the expulsion of the contents of an empyema through a bronchial fistula by the introduction of air above the fluid level. This has no advantage unless the empyema is so situated that it could not be easily and conveniently reached by external puncture.

The introduction of antiseptic fluid into a closed empyema cavity apparently does little good. If practically all the pus can be aspirated, alcohol in strength from 50 to 95 per cent., or 2 per cent. solution of formaldehyd in glycerin seems to relieve the sepsis at times. Gentian violet has not proved successful. Surgical solution of chlorinated soda (Dakin's solution) is contraindicated and of no avail. The effect of these fluids mentioned is probably enhanced by washing out previously with salt solution.

As tuberculous empyema is a complication of pulmonary tuberculosis and frequently of its advanced stages, it goes without saying that the prognosis is often grave. The most favorable cases are those without marked lung involvement. Unfortunately, many of the cases encountered are terminal phases of the lung disease or are identified with late and disastrous accidents of the pulmonary tuberculosis, such as the rupture of large cavities into the pleura in patients whose resistance is already exhausted. There still remain, however, a considerable number of cases in which the duration of life and comfort of the patient for the next few years depend entirely on whether the surgeon is able to resist the dictum that pus in the pleura, particularly when accompanied by fever, requires thoracotomy.

A few case histories are presented to emphasize that:

1. Open drainage in tuberculous empyema is an unsatisfactory and often a disastrous procedure when the end-results are considered.

2. The presence of other organisms in the pleural pus besides the tubercle bacillus—mixed infections—can be successfully treated by aspiration and replacement by air, which is contrary to the usual teaching.

3. The tuberculous base of empyema is often overlooked.

During the last few years, I have observed twenty-eight cases of tuberculous empyema with mixed infections. Eight of these were treated by aspiration and twenty by open drainage. I have treated all of the aspiration cases, but did not see many of the open drainage cases until operation had been performed. Only those cases in which there was persistent bronchial fistula were opened. Of the patients treated by open drainage, nine are dead, only one being considered as at all well. This was a patient treated by trochar and catheter, and he is at work and doing well. All of the others must be classed as more or less chronic invalids. Of the eight patients treated by aspiration, one is dead. All the others are working and in good health.

The first case is the only case of open drainage in which I have had an entirely satisfactory result. It is submitted as the misleading exception to the general rule.

### REPORT OF CASES

CASE 1.—J. D., a man, admitted to the Union Printers Home in 1914 with extensive tuberculosis of the left lung, was treated by artificial pneumothorax for about three months, when he suddenly became acutely ill and a spontaneous pneumothorax was diagnosed. Pus rapidly accumulated in the left pleural cavity, showing tubercle bacilli and many streptococci. He was aspirated for a little more than a month, and was then drained by trochar and catheter. Drainage was continued for about twenty months and then the sinus closed. He was discharged from the Union Printers Home in 1917, has been working continuously since that time, and is apparently in excellent condition.

The next three cases are more typical of the after-history of the drainage cases.

CASE 2.—Mrs. J. L. I. had had what was probably pleurisy with effusion sixteen years before. Some time after this, following delivery, she was ill in bed six weeks with chills, fever and pain in the right side. Five years before I saw her, during an attack of bronchitis, she suddenly expectorated a quantity of pus and, following this, began to have a rise of temperature. Two months later she had an extensive empyema with a mixed infection, which I drained. Improvement was marked, but a large sinus and cavity remained which proved to be tuberculous. Two years later eight ribs were resected. Convalescence was stormy, but she has since improved markedly but still has a sinus and cavity.

Case 3 is also a tuberculous empyema which was overlooked until drainage had been performed.

CASE 3.—Mrs. C. was delivered in April, 1921, and five days later developed a continuous rise of temperature which frequently ranged from 101 to 104. About a month after delivery, she came to Colorado Springs. She was found to have fluid in the left chest, reaching to the sixth rib posteriorly. Aspiration was at first unsuccessful, but three days later pus was found and drained, and tubercle bacilli were then found in the pleural fluid. A few days later, an effusion developed in the other pleural cavity. She became septic and died of acute miliary tuberculosis two months after delivery.

CASE 4.—T. O. T., a man, had influenza in 1918, and was in bed six weeks, during which time fluid accumulated in the left chest and was aspirated. Three months later, aspiration was again performed, and thereafter this was repeated at intervals of three weeks. Six months after his illness had begun a rib resection was done and three drainage tubes inserted, one of which was soon lost in the cavity. Somewhat later four additional ribs were removed, and the lost tube was recovered. A year after the drainage was begun, the sinus was enlarged and the tube dispensed with as the cavity was not draining properly. The cavity was irrigated with saline and iodin solutions. Up to this time no tubercle bacilli had been found in the pus. In July, 1920, eighteen months after the beginning of his illness, he consulted my colleague, Dr. Giese, who diagnosed tuberculous empyema. The sputum was negative, but the pleural pus contained tubercle bacilli. During the last year and a half efforts have been made to reduce the size of the cavity. Intensive irrigation with surgical solution of chlorinated soda was used and the sinus finally closed for a time. During the interval when the sinus was closed, formaldehyd and also alcohol were tried. Last August, it became necessary to again put in drainage tubes. Nov. 9, 1921, I resected 6 inches of the eighth and ninth ribs. This case illustrates not only the difficulties in the after-care of drainage cases, but also the fact that the tuberculous nature of the empyema may escape detection for a long time.

It is a matter of satisfaction to turn to three of the cases in which aspiration was performed.

CASE 5.—Miss E. G. developed pulmonary tuberculosis in 1919, and for a year and a half was under the care of osteopaths and quacks. She was first seen last January when suffering from a recent spontaneous pneumothorax of the valvular type with a positive intrathoracic pressure.. This pressure gradually decreased for three months, when she developed a purulent empyema of mixed type. Aspiration was performed and air was injected at intervals of about two weeks during the summer of 1921. She has gained 30 pounds (13.6 kg.), she takes a reasonable amount of exercise, and the roentgen ray reveals very little fluid in the pleura at the present time.

CASE 6.—F. M., a man, in 1914 developed active pulmonary tuberculosis and soon went for his health to Phoeniz, Ariz., where he almost immediately began to have hemorrhages with high fever and rapid loss of weight. Artificial pneumothorax was induced on the right side, which controlled the bleeding. He was given three subsequent pneumothorax treatments of from 600 to 700 c.c., when fluid developed. This was at first straw colored, but later became purulent. Aspiration was performed every two weeks for five months, when he came to Colorado, in June, 1916. He then weighed 115 pounds (52 kg.), had a temperature of about 100, and had complete aphonia. Soon after his arrival, his temperature rose to 104, and 32 ounces (946 c.c.) of thick, purulent fluid was aspirated. Aspiration was repeated every other day for a time and the interval increased gradually to once a week, then two weeks, then three weeks and so on until now aspiration is performed every eight or ten weeks. At present he weighs 17 pounds (7.1 kg.) above his usual average, and he has worked for the last two years. There is no cough or expectoration.

This case is cited to show that long continued aspiration often offers an excellent chance of recovery. The aspirated fluid always contained tubercle bacilli. In the earlier aspirations there were always mixed infections. At present no mixed organisms can be found.

CASE 7.—Mrs. J. P. P., aged 32, came to Colorado in August, 1914, just after a diagnosis of tuberculosis, although she had had pleurisy during the preceding year at various times. She did not do well under hygienic and dietetic treatment, and artificial pneumothorax was begun in September, 1915. This was completely successful and was maintained for two years without any particular difficulty. In August, 1917, she developed fluid in the pleural cavity, which rapidly changed to pus and was aspirated every one to three weeks to March, 1918. After a time aspirations were less frequent, the last occasion being in November, 1918. Since that time she has had no aspiration, and the lung has been allowed to expand. This fluid was frankly purulent, and contained many secondary organisms as well as tubercle bacilli.

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# CHEMOTHERAPEUTIC CONSIDERATIONS OF PENTAVALENT AND TRIVALENT ARSENIC*

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The study herewith detailed was undertaken in order to contrast the biologic effects of the pentavalent and trivalent forms of arsenic.

Valence is the energy capacity of an element expressed in numerical terms. Hydrogen has been selected as the basis for the measurement of valence and has been taken as the unit, namely, 1. When an atom of an element requires only one hydrogen to form a chemical compound, the element is considered univalent. Elements with greater energy capacity are bivalent, trivalent, etc.; moreover, they may exist in two or more conditions. For example, iron is both bivalent and trivalent; mercury, univalent and bivalent.

Arsenic belongs to the group of pentavalent elements. In pentavalent condition, all its energy is bound, the capacity for further reaction being greatly diminished. On the other hand, in trivalent condition it is unsaturated, the potential reactivity being much greater.

The chemotherapeutic investigations carried out by Ehrlich and his associates have developed the fact that arsenic in the trivalent condition is a more powerful trypanocide and spirocheticide than arsenic in the pentavalent condition. There would, in this connection, appear to be established a relationship between the energy capacity of the compound and its destructive influence on the parasites in question. This important observation and, moreover, the fact that chemical elements must be linked to the nuclear carbon in order to exert their fullest effect on the pathogenic microorganisms are the two most important advancements in modern chemotherapy.

If we take as an example of the pentavalent group such an inorganic salt as sodium arsenate, we find that it has a relatively high toxicity as compared with organic arsenicals containing pentavalent arsenic. The maximum tolerated dose of sodium arsenate is 50 mg. per kilogram. (Sodium arsenite, an inorganic salt, in which arsenic is trivalent, is much more toxic than sodium arsenate, being tolerated only in 3 mg. per kilogram.)

On the other hand, atoxyl, an organic compound with pentavalent arsenic, is tolerated in 120 mg. per

* From the Dermatological Research Institute.

kilogram. The first step, therefore, in detoxication would appear to be the incorporation of the arsenic into an organic molecule. Atoxyl, which was introduced by Bechamp, was at one time employed in the treatment of syphilis. Ehrlich used it as the starting point in the chemotherapeutic studies which culminated in the elaboration of arsphenamin. It is the sodium salt of arsanilic acid, produced by the fusion of arsenic acid and anilin. We have endeavored to determine the toxicity and the therapeutic effect of atoxyl and of various other compounds intermediate between it and arsphenamin.

In determining the toxicity of some of the intermediate compounds, discrepancies are encountered owing to the difficulty of preparing these in chemically pure form. Less is known concerning the precedent compounds than of arsphenamin, and yet it is a well known fact that different lots of arsphenamin vary in toxicity.

In order to avoid error as much as possible, we have made a number of tests of some of the intermediates and have averaged the results.

Fifteen different lots of the nitrohydroxyphenylarsonic acid were tested by us intravenously in white rats. The highest average tolerated dose was 88 mg. per kilogram.

In the process of making arsphenamin, this nitro compound is converted into the aminohydroxyphenylarsonic acid. Eight lots of this substance were tested by us and exhibited an average maximum tolerated dose of 114 mg. per kilogram.

The average of a large number of lots of arsphenamin was above 110 mg. The average of a large number of lots of neo-arsphenamin was 280 mg. It is seen, therefore, that the toxicity of the various arsonic acids is no lower than that of the pentavalent atoxyl. This is shown in Table 1.

TABLE 1.—TOXICITY OF VARIOUS ARSONIC ACIDS

| | Highest Average Tolerated Dose Mg. per Kg. | Duration of Test Days |
|---|---|---|
| Trivalent inorganic arsenic: | | |
| Sodium arsenite | 3 | 10 |
| Pentavalent arsenic: | | |
| Sodium arsenate | 50 | 10 |
| Arsanilic acid (atoxyl) | 120 | 10 |
| Arsonic acids (pentavalent): | | |
| Nitrohydroxyphenyl-arsonic acid* | 88 | 10 |
| Aminohydroxyphenyl-arsonic acid | 114 | 10 |
| "Arseno" compounds (trivalent): | | |
| Arsphenamin | 110 | 2 |
| Neo-arsphenamin | 280 | 7 |

* The arsonic acids and arsphenamin were converted into their disodium salts.

As a result of the oxidation of arsphenamin, aminohydroxyphenylarsenoxid (to be referred to for brevity as "arsenoxid") is formed. When arsphenamin is excessively reduced, on the other hand, a substance known as aminohydroxyphenylarsin (to be referred to for brevity as "arsin") is produced.

These compounds are much more toxic than arsphenamin. Our figures for the highest average tolerated dose of these compounds are: arsenoxid, 38 mg. per kilogram, and arsin, 35 mg. per kilogram.

There is another pentavalent organic arsenical known as diethylarsonic acid which has been recently advertised under a trade name for the treatment of syphilis. The toxicity of this preparation is very low. It is tolerated in 200 mg. per kilogram.

It will be seen that the foregoing arsonic acids are slightly higher in toxicity than atoxyl. Moreover, arsphenamin shows no superiority over atoxyl from the point of view of toxicity. Neo-arsphenamin, however, is far less toxic than atoxyl. The striking superiority in value of arsphenamin over atoxyl is manifest when the therapeutic effect is studied.

We have found from long experience that the trypanosome of horse syphilis reacts chemotherapeutically in a manner similar to spirochetes, and we have, therefore, employed it as a test parasite. White rats infected with this parasite and untreated die in four or five days, at which time the blood swarms with trypanosomes. The dose of the compound requisite to sterilize the animal is taken by us as a guide.

### TRYPANOCIDAL TESTS

Table 2 presents the average trypanocidal power of the arsenical compounds referred to above. The figures are based on the sterilization of white rats experimentally infected with *Trypanosoma equiperdum* (the parasite of "la dourine," or horse syphilis).

TABLE 2.—SUMMARY OF TRYPANOCIDAL TESTS

| | Number of Milligrams per Kilogram Necessary to Sterilize Animals |
|---|---|
| Sodium arsenite | Trypanosomes could not be influenced in 3 mg. doses (toxic dose) |
| Sodium arsenate | Trypanosomes not influenced by 30 mg. |
| Diethylarsonic acid | Trypanosomes not influenced by 80 to 150 mg. |
| Nitrohydroxyphenylarsonic acid | Trypanosomes not influenced by 30 to 60 mg. |
| Arsanilic acid (atoxyl) | 12 |
| Aminohydroxyphenylarsonic acid | 8.25 |
| Aminohydroxyphenylarsenoxid | 2.4 |
| Aminohydroxyphenylarsin | 0.8 |
| Arsphenamin | 2 |
| Neo-arsphenamin | 3 to 4 |

This table indicates that four of the compounds had no influence on trypanosomes in doses approaching the toxic limit.

The importance of evaluating compounds on the joint basis of toxicity and therapeutic effect is here shown. Diethylarsonic acid possesses a very low toxicity, but does not kill trypanosomes even after the administration of enormous doses. (It is of interest to note that Nichols of the U. S. Army Medical School found that it likewise had no effect on *Spirochaeta pallida*.)

On the other hand, there are two modifications of arsphenamin which transcend it in therapeutic effect, namely, arsenoxid and arsin, but they have a much higher toxicity. Arsin was found to be the most trypanocidal compound that we have studied. Arsenoxid was also highly trypanocidal, and in one test gave figures as low as arsin.

### THE THERAPEUTIC INDEX

It is obvious that the value of any drug in a parasitic disease depends in large part on the relationship of its affinity for the parasite to its affinity for the body cells: in other words, on the relationship of its parasitotropic to its organotropic effect, or, to use another terminology, the relation of the toxic influence on the parasite and on the body cells. The greater the latitude between the tolerated dose and the parasiticide or curative dose, the more valuable is the remedy.

This relationship is represented by the fraction:

$$\frac{\text{Dosis tolerata}}{\text{Dosis curativa}}$$

If we take, for instance, atoxyl, the tolerated dose is 120 mg., and the trypanocidal dose, in our studies, 12.

$$\frac{\text{Tolerated dose, } 120}{\text{Sterilizing dose, } 12} = 10$$

Therefore, 10 represents the chemotherapeutic index with our strain of *Trypanosoma equiperdum*.

It is interesting to note that while atoxyl possesses a trypanocidal effect, a compound representing a product nearer in the stage of elaboration to arsphenamin, namely, the nitrohydroxyphenylarsonic acid, is devoid of such power. The nitro radical in this molecule appears to be dystherapeutic.

The neo-arsphenamin which we have extensively tested gives the best therapeutic index, with arsphenamin next. (To be sure, with another test parasite or, indeed, with different strains of the same parasite, the actual figures would be different, but they would bear much the same relationship to one another.)

TABLE 3.—THERAPEUTIC INDEXES

| | |
|---|---|
| Sodium arsenite<br>Sodium arsenate<br>Nitrohydroxyphenylarsonic acid<br>Diethylarsonic acid | Cannot be expressed because of no demonstrable influence on the trypanosomes employed |
| Arsanilic acid (atoxyl) | 10 |
| Aminohydroxyphenylarsonic acid | 13 |
| Aminohydroxyphenylarsenoxid | 15 |
| Aminohydroxyphenylarsin | 44 |
| Arsphenamin | 55 |
| Neo-arsphenamin | 80 |

### CONCLUSIONS

1. Arsenic in inorganic compounds is highly organotropic and devoid of destructive effect on trypanosomes and spirochetes.

2. When linked to carbon in organic compounds, it may acquire a destructive influence on the parasite.

3. Organic arsenicals are generally less toxic than inorganic. Those containing pentavalent arsenic are no more toxic than the trivalent. The least toxic of the trivalent compounds are those which contain the so-called arseno group. Compounds of the arsenoxid and arsin type are considerably more toxic than of the arseno type.

4. The effect on trypanosomes and spirochetes appears to depend in considerable measure on the valence of the arsenic. Trivalent carbon-linked arsenic is a much more powerful trypanocide than pentavalent. The arsin type is more trypanocidal than any other type of organic trivalent arsenical, although arsenoxid also exhibits a high value in this respect.

5. The nitrohydroxyphenylarsonic acid possesses no trypanocidal effect, but when the nitro group is converted into an amino radical a striking change is immediately observed.

6. The arseno compounds, arsphenamin and neo-arsphenamin, give distinctly the best therapeutic indices of the entire series, and in this respect neo-arsphenamin is superior to arsphenamin.

In another paper to be published shortly, we shall consider the significance of the amino group in the chemotherapy of the arsenicals.

**Practitioner and Industrial Physician.**—The industrial board is responsible for the administration laws, but their effectiveness largely hinges on the physician, whose function is to cure but who has not been trained to adjudicate cases. A perfectly functioning working agreement between the private practitioner, the industrial physician and the medical representative of insurance interests is yet to be reached, but a new ethics will evolve out of precedents established and out of a better understanding of the intent of the law on the part of both the profession and the pubic.—*Nation's Health* **3**:609 (Nov.) 1921.

## INDIVIDUAL VARIATION AS INFLUENCING REHFUSS FRACTIONAL METHOD OF GASTRIC ANALYSIS

PRELIMINARY COMMUNICATION *

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The ultimate value of the data acquired by any method obviously depends in great measure on the accuracy of the method. This involves not only the errors inherent in it, but also the magnitude of the personal equation. It is my purpose in this preliminary communication to report some critical studies of the Rehfuss fractional method of gastric analysis. In a review of the literature on this method and its applications, a surprising fact was noted: So far as could be determined, there has been published no series of fractional gastric analyses on the same individual at different times, using the same test meal and having all other physical and mental conditions as nearly identical as possible. The necessity of performing such experiments in order to establish the errors inherent in the method is apparent, yet neither the literature nor private correspondence has revealed such information.[1] The following is an attempt, therefore, to establish the validity of this method in its appplication to the study of psychoses.

The group of twenty patients selected for these studies belonged to the so-called functional psychoses and comprised twelve diagnosed as dementia praecox, eight manic-depressive, seven manic, and one depression. All showed evidence of bacterial infection in teeth and tonsils. There was some likelihood that the gastro-intestinal tract might likewise be considered a focus of infection. Some patients, as might be expected, proved more cooperative than others, but all were accessible. The manner in which they swallowed the tube was carefully noted, as well as their behavior during the analysis. They were asked to expectorate freely and not to swallow any more saliva than was absolutely necessary. It was manifestly impossible to carry out the analysis under anything resembling aseptic conditions, but an effort was made to reduce gross contamination to a minimum by sterilizing the tubes and syringes. Before the Rehfuss tube was introduced, the patient's mouth was rinsed with a chloramin-T solution followed by sterile distilled water.

The results obtained may best be discussed in connection with a few curves which will emphasize the salient points, as no attempt will be made to go into details.

Since Rehfuss considers no one curve as exclusively normal, the curves named isosecretory, continued and hyposecretory are regarded as being characteristic of

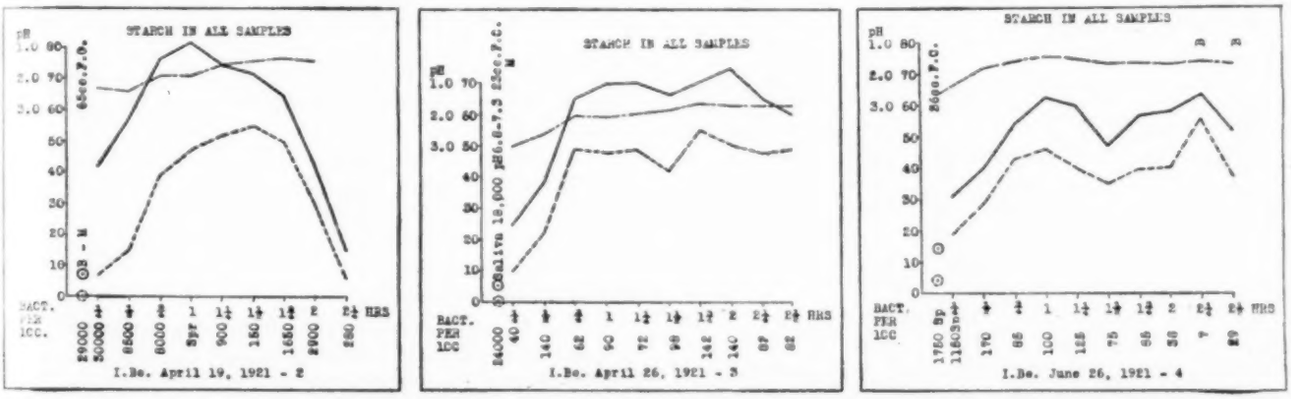
* Read before the Brooklyn Neurological Society, Oct. 19, 1921.

1. The following two series of papers by Rehfuss, Hawk, et al. have been consulted. The gaps represent numbers for which no reference in the standard literature has been found; the duplication of the number 10, as well as the missing numbers, remains unexplained by the authors:
Gastro-intestinal studies: 1. J. A. M. A. **63**: 11 (July 4) 1914; 2. Ibid. **63**: 909 (Sept. 12) 1914; 3. J. Biol. Chem. **19**: 345, 1914; 4. J. A. M. A. **63**: 2088 (Dec. 12) 1914; 5. Ibid. **64**: 1737 (May 22) 1915; 6. Ibid. **64**: 569 (Feb. 13) 1915; 7. ——; 8. J. Biol. Chem. **21**: 165, 1915; 9. ——; 10. J. A. M. A. **65**: 1021 (Sept. 18) 1915; 10. Am. J. M. Sc. **150**: 72, 1915; 11. J. Biol. Chem. **23**: 505, 1915; 12. Am. J. Physiol. **39**: 459, 1915-1916.
Gastric response to foods: 1. Am. J. Physiol. **45**: 1, 1917-1918; 2. Ibid. **48**: 411 (May) 1919; 3. Ibid. **49**: 174 (July) 1919; 4. Ibid. **49**: 204 (July) 1919; 5. Ibid. **49**: 222 (July) 1919; 6. Ibid. **49**: 254 (July) 1919; 7. Ibid. **51**: 332 (March) 1920; 8. ——; 9. ——; 10. Am. J. Physiol. **52**: 1 (May) 1920; 11. Ibid. **52**: 28 (May) 1920; 12. Ibid. **52**: 248 (June) 1920; 13. Ibid. **53**: 65 (Aug.) 1920.

different types of normal digestion. It is inferred that all curves for an individual should adhere to one type only, which constitutes the normal curve for that subject.

In the accompanying chart, at the left is a curve which corresponds to the type called "isosecretory" by Rehfuss. The middle curve corresponds to that called "continued." Contrary to expectation, these are not single curves taken from two different individuals but two curves from the same individual examined twice in one week. At once the question will be raised as to the difference in mental state. But no difference was discernible, for mentally she appeared to be in the same condition at the two times the analyses were conducted. A third analysis carried out two months later, with no change in physical or mental condition, gave still another curve, resembling the middle curve, but not identical with it.

Considered from the standpoint of clinical interpretation, these curves present obvious divergences. How could one make comparisons between different individuals on the basis of a single curve for each, when the differences between curves for the same individuals are so striking? It might be suggested that, in these




At left, a curve corresponding to the type called "isosecretory" by Rehfuss. In center, a curve corresponding to the type called "continued." This curve was taken from the same patient a week after the first. At right, a curve obtained two months later, with no change in the condition of the patient. Ordinates, from 0 to 80 c.c. of tenth normal sodium hydroxid per hundred cubic centimeters of gastric contents; abscissae, from one-quarter hour to two and one-half hours at fifteen minute intervals; numbers below abscissae, bacteria per cubic centimeter; numbers at left of ordinates, *p*H 1.0-3.0; *F. C.*, fasting contents; point in circle total acidity of fasting contents; point in broken circle, free acidity of fasting contents; *B*, bile; *M*, mucus.

persons, variations have resulted from some idiosyncrasy in technic. While it is true that such a method must be subject to great errors due to the personal equation, nevertheless the method has been followed with fidelity to Rehfuss' description and the experience of others.

The question might be raised as to whether these results are due to some peculiarities in the subject. However, similar results have been obtained with the other individuals of the group studied, but lack of space does not permit the publication of these graphs, which will appear elsewhere.[2] So far as could be observed, no change in physical or mental status was detected which might account for these differences occurring between analyses repeated within a short period of time.

Common sense would justify the belief that digestion in the same individual would vary from day to day. Yet hundreds of curves obtained by this method have been published by Rehfuss and others establishing conclusions concerning the digestibility of this or that food, or the behavior of this or that stomach, while only one curve is presented for each condition.

No chemist would venture to report a quantitative analysis which had not been run at least in duplicate. The physiologic chemist cannot emancipate himself from this primary scientific necessity, which insures the validity of his results. In fact, with such a method one would naturally expect that the analysis would be repeated until a satisfactory agreement between curves could be obtained. Often, to be sure, two analyses agree so closely as to be a bona fide representation; more often, three analyses are required. Obviously, however, a single determination is inadequate on which to base conclusions of any significance.

Turning our attention to another point of some interest, we find that the variation in the highest point on curves from the same person often exceeds differences between highest points of different persons; for example, in the chart the high points are 82, 80, and 64, or an average of 75. Comparing this average with another subject taken at random, say one who showed high points of 75, 83 and 58, or an average of 72, the difference between the average high points for these persons is only 3 c.c. Yet the variation in repeated curves from either person is upwards of 18, or more than six times 3 c.c. The high point has some meaning in gastric acidity for those who use the Rehfuss method, and even more for those who use the one-hour complete aspiration. The necessity for repeated analyses is here again demonstrated.

A similar situation exists with regard to the total amount of "fasting contents." For example, the stomach residues indicated in the chart are 65, 23 and 36, or an average of 41. In another patient it was 80, 6 and 25, or an average of 37. The difference then in the total amount of fasting contents between the two persons is only 4 c.c., while the differences in amounts from the first person are 42 c.c., and in the second 74 c.c., both of which exceed the difference between the two persons. Rehfuss has asserted that, in contradistinction to other investigators, his higher findings for the total amount of fasting contents represents normal conditions, and names 50 c.c. as the average residue. How significant can this be so long as we do not know the extent of the individual variations which went to make up the average, for it has just been shown that these variations often exceed differences between individuals? It is, of course, true that those employing

2. Kopeloff, Nicholas: The Fractional Method of Gastric Analysis Applied to the Psychoses, State Hosp. Quarterly, New York, to be pub-

other methods of gastric analysis have fallen into a similar error.

If one examines these curves with a view to establishing how closely the usual titration method for free acidity approaches the true acidity as expressed by $p_H$, we find that there is agreement in only 80 per cent. of the instances. For example, in the chart there is slight agreement in the first curve and fairly good agreement in the other two curves from the same individual. In other words, the results corroborate those of Shohl of Johns Hopkins, who asserts that the hydrogen ion concentration is the important factor in gastric acidity, and that it cannot be measured by the common titration method. The electrometric or colorimetric methods well known in physical chemistry are employed for that determination.

In view of these results, obtained by applying the fractional method of gastric analysis to psychoses, the question which undoubtedly would arise is, Do normal persons exhibit the same variations on repeated analyses, or can these individual variations be ascribed to the mental condition of these patients? The answer has been graphically represented in curves compiled from analyses of ten nurses who had no digestive disturbances of any kind and who were normal, physically as well as mentally, and remained so throughout the period of investigation.

It was found that the three curves obtained within one week on the same subject differed radically; in the next subject the first curve differed from the other two which followed, while in the last subject the middle curve was sharply in contrast to the other two. These curves of normal persons establish the fact that individual variation is a factor of primary concern in analyses obtained by the Rehfuss method. Furthermore, this factor has been neglected by those employing the method.

No discussion of the Rehfuss method would be adequate without mention of a valuable paper by Gorham.[3] He has shown that errors exist in this method, owing chiefly to the shifting in position of the tube, and that 10 c.c. samples are not sufficiently representative of the total gastric contents to be a valid aliquot. I have corroborated these results, and a report will be published shortly.[4]

I stated at the outset that this method was to be used for the purpose of establishing the probabilities of focal infection in the gastro-intestinal tract. It is natural to expect (and the bacteriologic literature bears this out) that when gastric acidity is high the bacterial content is low, and vice versa. We have not been able to confirm this observation save in half of our instances. In other words, instead of a falling off in bacterial count there is an increase with a rise in gastric acidity, and subsequently a mutual decline. This suggests that another as yet unknown factor is in operation. From close observation, we have concluded that the bacterial content of the stomach depends on the swallowing of saliva. In other words, the more saliva swallowed, the greater will be the bacterial count, and vice versa. It is of interest, in this connection, to note the case of a patient who was in a depression and secreted very little saliva. Her mouth would remain quite dry throughout the analysis. It is significant, therefore, to observe that bacteria were absent (or practically so) from the various fractions taken at different times. The bacterial counts of the saliva run well in the hundreds of thousands, as a rule, and since the reaction is generally near neutrality, there is nothing to hinder them en route to the stomach. A final experiment (in which the saliva is suctioned off) has thrown further light on this point; for when the saliva has been mechanically removed during the analysis, the bacterial counts on gastric contents are tremendously reduced.

In discussing the gastric acidity of the functional psychoses it may be of interest to make mention of possible differences to be found between dementia praecox and manic-depressive patients. So far little difference between these two groups has been observed. For example, the average high point of the dementia praecox patient is about 61, while the average high point of the manic-depressive group is 61. It is wiser not to generalize until further data have been accumulated.

## SUMMARY

In a critical study of the Rehfuss fractional method of gastric analysis, the following results were obtained in normal and psychotic individuals:

1. Repeated analyses on the same individual within a short period of time—while the physical and mental condition remain practically unchanged, yield different curves.

2. These curves from the same individual vary as much from one another as the differences between the curves of different individuals.

3. Variation in the highest point on curves from the same individual often exceeds differences between the highest points of different individuals.

4. Variation in the total amount of fasting contents from the same individual is often greater than between different individuals.

5. There is an imperfect correlation between the measurement of gastric acidity by the titration method and hydrogen ion concentration determinations. The latter yields more important information regarding true acidity. This agrees with the work of Shohl.

6. Similar results were obtained when repeated analyses were made on healthy normal individuals showing no gastric symptoms.

7. In only half of the instances was there any correlation between high gastric acidity and low bacterial count. This indicates that another unknown factor is in operation.

8. It is suggested that the bacterial content of the stomach depends on the swallowing of saliva. Bacterial counts, reaction of saliva and observation of amounts swallowed substantiate this, as well as removal of saliva during the analysis.

9. There is little difference in the gastric acidity of patients diagnosed as having dementia praecox and manic-depressive insanity.

## CONCLUSION

Subject to the limitations of the investigation, it is indicated that single determinations of gastric acidity by the Rehfuss method are not sufficient on which to base conclusions, because they do not take into consideration individual variation.[4]

3. Gorham, F. D.: Variations of Acid Concentration in Different Portions of Gastric Chyme, and Its Relation to Clinical Methods of Gastric Analysis, Arch. Int. Med. **27**: 434-441 (April) 1921.

4. Kopeloff, Nicholas: Variations in Aliquot Fractions of Gastric Contents, Proc. Soc. Exper. Biol. & Med., to be published.

4. Since this paper was submitted for publication, the author's attention has been called to a series of papers dealing with the Rehfuss method by Bennett, Ryle and their associates, published in Guy's Hospital Reports **71**, 1921. Many of the points brought out by these authors are substantially the same as those herein arrived at, and the fact that these data were independently obtained lends an added interest.

# EPIDEMIC (LETHARGIC) ENCEPHALITIS

## A PERSONAL EXPERIENCE *

With the hope that my experience may be of assistance to others in the diagnosis, prognosis and convalescent care of persons suffering from epidemic (lethargic) encephalitis, I will record my symptoms, with special reference to the subjective symptoms, as they occurred, without attempting to make any deductions or any reference to literature, which is not available to me at this time.

### PERSONAL HISTORY

At the time of the illness here recorded I was 34 years of age, married, and had one child, aged 7 years. For the twenty years preceding I had enjoyed excellent health. After returning from France and receiving my discharge from the army in August, 1919, I traveled throughout the eastern half of the United States until January 2, when I arrived in Baltimore, where I remained until the end of February. During this period of moving from place to place I had had no illness of any sort except a severe coryza at Christmas time (1919); and I had knowingly come in contact with but two persons who had been ill: my son, who had a gastric disturbance following a long ride on a train during the second week in February, and a man who had recently been ill with influenza.

### PRODROMAL PERIOD

During the latter part of January and the month of February I was exceedingly nervous, and during February there was present an extraordinary sexual excitement, but there were no other signs of illness, and I attributed these symptoms to the strenuous life I had been living for a few months. When my wife met me about the middle of February, she said that she had never known me to be in such a disturbed mental condition.

### ONSET

In New York on the evening of February 27, after an unappetizing meal, I suddenly became nauseated and vomited. Vomiting continued throughout the night. The next day everything eaten was immediately vomited, and I was feverish and chilly by turns, as if I were experiencing the onset of some acute illness. It was but a week since I had been talking with the man convalescing from influenza, and I thought that I was experiencing the onset of that disease. That night I was unable to sleep; on the contrary, my mental processes were exceedingly active. My mind "raced" with thoughts coming and being carried to their conclusion with such speed that the experience was extremely pleasant. These thoughts have stayed with me almost as clearly as though it were last night. During that night I had a most unusual experience, in view of the symptoms mentioned under the heading of prodromes, the complete loss of sexual power. This was so startling that I thought that my illness was more severe than I had previously supposed.

The next day found the symptoms much abated, and though my head ached and I felt weak, I was well enough to go out for a little walk with my family. This night the symptoms of the preceding night returned, but with diminished force, and my thoughts were not nearly so clear.

On the third day, March 1, I lounged around my room all day. This night, the fourth from the onset, I slept.

The following day I went to the office as usual and made final arrangements to leave for Panama on the next day. I still felt as though recovering from a mild attack of influenza.

### APPARENT INTERMISSION

During the trip, which lasted seven days, I had a bilateral earache. Never before that I can remember had I had the slightest trouble with my ears. Herpes labialis developed about the middle of the week. A trip on the ocean would ordinarily have been a pleasure to me, but this time it became tiresome, and I was very nervous and irritable. I attributed these symptoms to the fact that for several months I had been working very hard and to the illness in New York. Although sexual power had returned as the early symptoms disappeared, I no longer had the excitement mentioned previously. I landed at Christobal, Canal Zone, March 10, 1920, apparently quite well.

### THE ATTACK

*Period of Excitement, Conscious.*—No other symptoms occurred until March 13, when I was again unable to sleep. Once more I had the pleasant sensation of my mind racing joyously and clearly, and again I experienced that "mysterious" loss of sexual power. From this time on there was a loss of sexual desire as well as of sexual power.

March 14, I was happy, bright and talkative (not my usual habit). Both thoughts and speech were rapid. I discussed the work with my predecessor, and with a lively imagination I told story after story to my son, speaking so rapidly that he said he had difficulty in understanding me. Again I could not sleep.

March 15, I went to the office. I was still unusually talkative, but spoke through set teeth. The night brought no sleep.

March 16, on arising in the morning, I found that I could not keep from humming or repeating odd, meaningless sounds. The "control" had ceased to function. I noticed that, without any exertion, my respiration became panting in character, and men whom I met asked me if I had been running. I felt as if I were under the influence of alcohol, and talked as if I were. I was so intent on becoming thoroughly acquainted with the various phases of my new work, as my predecessor was to leave in a few days, that I did not realize that I was ill and I felt somewhat ashamed because, as I thought, my nerves were getting beyond my control. Throughout the day my mind was active, but I was becoming more and more irritable. There was no sleep that night.

March 17, the humming had disappeared, my mind was not so clear, and my thoughts were much less rapid. The panting respiration was present in an aggravated form. At night, when I tried to sleep, I found myself setting my teeth, and in breathing I made such "awful noises" that I almost drove my wife to distraction. To me it seemed that I would get almost to sleep and then some interference or irregularity of my breathing would again awaken me. Sleep was impossible. I felt somewhat feverish.

* This diagnosis was made by Drs. R. C. Connor and C. D. Briscoe of Ancon Hospital, Dr. William James of Panama Hospital, and Dr. F. A. Miller of the International Health Board of the Rockefeller Foundation.

March 18, I left the office early to try to tire myself out by exercise so that I might sleep. I was unsuccessful.

March 19 was a repetition of the preceding day.

*The Lethargic Period.*—March 20, I went to the office as usual, but soon returned to my room at the hotel, where I tried to tire myself out, feeling certain that I had merely lost control of my nerves in a new situation and in the tropics. That afternoon I fell asleep for a few hours, and on awakening found that I had a marked diplopia. However, I did not yet feel sufficiently ill to stay in bed, and in the evening I went out on a business errand.

From March 21 until my temperature became normal about twelve days later, my memory of all that occurred is lacking or extremely hazy. My wife states that while still at the hotel I talked incessantly and that my hands and arms were never still. I gave numerous short connected discourses on subjects related to my work or problems in which I was interested. Most of the time I lay with my eyes closed, mumbling or talking, picking at the bedclothes or groping as if hunting for something to eat. When I found I had nothing I would open my eyes, and a queer, disappointed expression would spread over my face. This happened so often as to be characteristic. As long as my attention could be held, which was for only a few moments at a time, I answered clearly and intelligently. March 24, when two physicians were called in consultation, I evidently made a great effort at self-control for some time. One of the physicians remarked that my case resembled typhoid.

On entering the Ancon Hospital, March 24, I had a temperature of 102.3. (I had probably had that much elevation of temperature for several days previous to my admission.) My attention could be held only by speaking to me in a loud voice or by calling my name repeatedly. When I did answer, I replied intelligently, but I would immediately pass off into a stupor with delirious muttering.

For the first week in the hospital the nurses' entry on my chart was "irrational." My wife, who visited me every day, states that for three or four days I was in the same condition as at the hotel. My attention could be held for only a few seconds. My eyes would close and I would begin to grope and to talk about something else or mutter an utterly meaningless jumble of words.

March 28, when my wife called to see me, she noticed that she could command my attention for a longer period of time and that I seemed to pass into a more quiet sleep. Of all the tests that were made on me, I remember but one, the spinal puncture, made that afternoon. Before going to the hospital I knew that almost the first thing that would happen would be the spinal puncture, and in the condition I was in I became very much opposed to the performance of this test. However, my memory of this operation is not of the pain but of the skill of the physician who did it. I can remember a sensation of "if that is all, it is nothing." From various sources I find that I must have put up rather strong opposition to having the puncture made, but when the physician at last came to do it, I offered no resistance, and as he reports, I was asleep before he was through.

### SUMMARY OF THE HOSPITAL RECORDS (EXCERPTS)

*Physical Findings.*—(Except as herein recorded, the hospital findings were negative.) Weakness of the left internal rectus. Sense of smell impaired. Eyegrounds negative—no blurring or choking of the disk. Catalepsy present.

*Laboratory Tests.*—Blood culture sterile. Wassermann reaction negative on blood and spinal fluid. Spinal fluid under great pressure—it spurted out. Cell count 30 per cubic millimeter. Cells present, small mononuclears. Globulin tests negative: butyric acid; ammonium sulphate; phenol. Widal positive for *B. typhosus* (I have been vaccinated against typhoid three times, the last time being in August, 1918, while I was in the army, when oil emulsion vaccine was used). Leukocyte count, 9,000. Red blood count and hemoglobin, normal. Nasopharyngeal culture positive for *Streptococcus viridans* and staphylococcus, but negative for meningococcus, *B. influenzae* and *Streptococcus hemolyticus.*

*Notes.*—"During the first week in the hospital, the patient would get out of bed, shave and dress himself completely, not forgetting collar and tie, but all unconsciously." (I have a hazy recollection of my impatience with the hospital authorities when they "arbitrarily changed" my bed. As a matter of fact, I afterward learned that I had wandered into another patient's room and had tried to drive him out with pillows from "my room.")

My temperature was down to 99 F., March 31, and was normal, April 7. At the end of the third week in the hospital, April 14, I went home, not because I had recovered, but because there apparently was nothing that could be done for me at the hospital that could not be done at home.

### CONVALESCENCE

The long and tedious period of convalescence was characterized by marked weakness, an insatiable desire to lie down and sleep, and various nervous manifestations. The most pronounced symptoms disappeared within six months, but some of the first to appear, impotence and loss of sexual desire, were more tenacious, and at the present time, twenty months after the onset of the disease, I cannot confidently say that normal sexual life has returned.

Before leaving the hospital, I was conscious of an almost constant desire to urinate, but the flow was very slow in starting and then it was little more than a dribble. At this time I was also very constipated. These symptoms lasted for one month after I had left the hospital.

For several months, perspiration was very marked, especially about my mouth.

For months I involuntarily set my teeth when trying to go to sleep or on the slightest excitement.

Often I felt in my throat what I diagnosed as an hysterical bolus.

For about a month my memory was an almost absolute blank, and my past was so hazy that it was impossible for me even to understand why I was living with my family. Why I should not take one of the ships that passed and go to some other place was a question that often arose. It seemed to me as though a dense fog surrounded my whole past; nothing was certain. Any attempt to remember was usually an impossible struggle.

Before these symptoms left (three weeks after leaving the hospital) I resumed the duties of my office. The walk of two short blocks from my home to the car was almost too much for me, and when I arrived at the office, I could scarcely wait until I reached a chair to sit down. In spite of the most strenuous efforts I frequently went to sleep. Sleep overwhelmed me during the short street car rides to and from the office. At home it was impossible for me to sit at the table until the meal was finished. I must lie down.

At night I could not overcome a fear of I know not what. I made endless rounds to see that the windows and doors were locked, and at every noise, imaginary or real, I was out of bed prowling around the house to find the cause of it. The nights were terrors for me, and I was glad when daylight returned.[1]

After the other symptoms had disappeared, a weakness remained for at least six months, so great that after any special effort I came to expect two or three days of headache and of neuralgia-like pains in the chest.

After a horseback ride of four hours I was obliged to remain in bed for a day and a half, unable to do aught but sleep. The neuralgia-like pains would often prevent me from sleeping. They usually began at night soon after retiring, and would disappear a few hours after arising in the morning. An attack of these pains would usually last two or three days.

### CONCLUSION

After six months all symptoms had so far disappeared that no one would have thought, to look at me, that I had been ill. (In fact, throughout my illness people remarked about my apparently good condition.) I lacked energy and endurance for walking or taking any other form of exercise, and whether owing wholly to the lack of exercise or to the disease, I have gradually increased in weight until I now weight 25 pounds (11.3 kg.) more than I ever did before. At the present time, twenty months after my illness, I feel as well as I ever did in my life, except for a very rare recurrence of the neuralgic pains previously mentioned. Neither my wife nor my child ever showed any symptoms of lethargic encephalitis.

### SUMMARY OF HISTORY

1. *Prodromal Period* (Length of period?).—Intense nervousness and sexual excitement.

2. *Onset* (Five days).—Sudden, with nausea and vomiting; headache and symptoms of coryza; hyperactivity of mind; impotence.

3. *Remission* (Eleven days).—Earache; irritability; herpes labialis.

4. *Period of Excitement* (Seven days).—Hyperactivity of mind; impotence; insomnia; rapidity of speech; humming; setting of teeth; panting respiration; stertorous breathing; dulling of mind.

5. *Lethargic Period* (Fourteen days).—Diplopia; ceaseless muttering and movements of hands; catalepsy.

6. *Convalescent Period* (Most marked symptoms six months, total period eighteen months).—Slowness of urination with dribbling; constipation; nervousness; weakness; fear; difficult breathing; acute sense of smell; absence of sexual excitement, and impotence; loss of memory; oppression; neuralgia-like pains.

1. I slept half the day for two months.

**Cardiovascular Syphilis.**—Cardiovascular involvement is probably present to some degree in nearly all late syphilis and should be searched for. The presence of obvious signs means a fairly advanced process. The condition of the coronary arteries, difficult to predict from either examination or history, is very important. Necropsy experience has made us realize that patients who are seemingly good symptomatic risks may have such a degree of occlusion that death results under treatment from the Herxheimer reaction, or the effects of too rapid healing. Myocardial protest against arsphenamin, even in early cases, can be recognized by transient edema and a dilatation which responds to digitalis.—J. H. Stokes, *Arch. Dermat. & Syph.* **4**:787 (Dec.) 1921.

## HEREDITARY HYPERTENSION AND ARTERIOSCLEROSIS

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It has long been felt that a close relationship exists between arteriosclerosis, chronic nephritis and certain degenerative changes in the heart, the terms "cardiorenal" and "cardiovasacular renal" indicating the association. At the present time there is a tendency in medical thought still more completely to unify this group of conditions, and to regard them as the late stage of an essential hypertension which began many years before, the word "essential" being a cloak for our dense ignorance of the causes of elevated blood pressure.

### REPORT OF CASES

The accompanying case histories of a brother and two sisters illustrate many features. Their father died of apoplexy at 58. Their mother of pneumonia at 74. Two other sisters are living and presumably well, whom I have not had the opportunity of examining. One sister died at 17 of organic heart disease following scarlet fever.

CASE 1.—*History.*—Mr. W. B., aged 50, superintendent of a large manufacturing corporation, who consulted me, March 30, 1918, had had scarlet fever, measles and other diseases of childhood, and pneumonia at 13 and again at 19 years. At 9 he had a sunstroke. For twenty years he had had frequent severe headaches, usually occipital, often accompanied by gastric symptoms.

He was a well-developed man, mentally alert, with tortuous temporal arteries, which stood out very prominently. The radials were diffusely thickened, firm and tortuous. The apex beat of the heart was diffuse and forcible. Moderate enlargement was present. The aortic second sound was markedly accentuated and ringing. The margins of the optic disks were slightly blurred.

July 18, 1920, as he was about to leave the factory, there was severe pain in the head, which felt as if it would burst. He became confused and walked past his own house on the way home. When examined, no new physical signs were evident; the blood pressure was 160 systolic and 80 diastolic. He remained in bed for many weeks and showed occasional brief periods of mental confusion. Sept. 2, 1918, the tonsils, which were submerged and definitely diseased, were removed. The subsequent course of his illness did not appear to be modified. Jan. 5, 1919, while starting out for a fishing trip, he had a general convulsion on the trolley car. During the following year and a half he had several similar convulsions, which were never followed by paralysis or other demonstrable physical disturbances, but always by a short period of mental confusion. On one occasion an unusually severe headache was much relieved by a lumbar puncture and the escape of clear fluid under great pressure, but this headache entirely disappeared following a free epistaxis. The spinal fluid on two occasions gave a negative Wassermann reaction. The cell count was 6, and the globulin was not increased. The blood Wassermann reaction was negative. The blood pressure showed a steadily rising tendency, reaching 210 systolic and 130 diastolic early in 1920. March 11, the nonprotein nitrogen of the blood was 46 mg. and the sugar, 185 mg. The specific gravity of the urine ranged from 1.020 to 1.025. There was usually no albumin and only an occasional hyaline cast. In July, 1920, while visiting a neighboring village, he had a sudden apoplexy with hemiplegia, became profoundly unconscious, and died in two days at the age of 52 years.

*Summary.*—In a case of hypertensive cardiovascular disease, the heart and kidneys functioned well, but there was apparently generalized arteriosclerosis with marked affection of the cerebral vessels terminating in apoplexy.

CASE 2.—*History.*—Miss C. B., aged 57, a milliner, who has been under observation for five years, has been unable to do more than light work because of marked asthenia and has had to take several rest cures in bed of many weeks' duration. At 13 years she had typhoid fever. She has had frequent acute grippal infections of the upper respiratory tract. Several abscessed teeth, as well as small degenerated tonsils, have been removed without noticeable effect on her symptoms. The systolic pressure has varied from 130 to 205, and the diastolic from 70 to 120. The last reading was 175 systolic and 100 diastolic. She is of average size and weight; her color, sallow. The palpable arteries are not thickened. The heart shows evidence of slight hypertrophy with the presence of soft mitral and aortic systolic murmurs and an accentuated aortic second sound. Slight edema over the tibiae is noted. The phenolsulphonephthalein test in 1917 was 60 per cent. for two hours. The nonprotein nitrogen, which was 61 mg. in 1917, slowly fell under restriction of protein in the diet to 33 mg. in February, 1921. At that time the blood sugar was 133 mg. and the Wassermann reaction negative. The two-hour renal test showed a variation in specific gravity from 1.011 to 1.025, and a night urine of 525 c.c. Dr. F. W. Marlow found bright dots in the retina which he considered an indication of arterial or renal disease.

*Summary.*—This patient presents no demonstrable evidence of arteriosclerosis save in the retina and aorta. Kidney function is fairly good, but the heart shows signs of early functional impairment. Hypertension has been observed for five years. If the heart does not give way and the patient lives sufficiently long, she will probably develop renal insufficiency.

CASE 3.—*History.*—Miss G. B., a high school teacher, aged 44, who has been under observation since November, 1915, had an appendectomy performed in 1907 by Dr. Nathan Jacobson for chronic indigestion, which was entirely relieved. She has frequent acute infections of the upper respiratory tract, and has had tonsillitis several times. Diseased tonsils were removed in July, 1916. She has had frequent attacks of urticaria since a child. The systolic pressure had varied from 150 to 195, and the diastolic from 80 to 110. The urine has remained constantly normal. A two-hour renal test, May 3, 1921, showed a variation in specific gravity from 1.014 to 1.022 and a night urine of 410 c.c. The blood sugar was 147 mg., nonprotein nitrogen 29 mg.

Examined, April 27, 1921, the patient was poorly developed but active, and weighed 101 pounds (45.8 kg.). A small goiter was present. The heart apex was diffuse and forcible in the fifth interspace 1 cm. inside the nipple line. There was evidence of slight cardiac hypertrophy. The first mitral sound was booming and impure. There was a faint aortic systolic murmur. The aortic and pulmonic second sounds were both accentuated. The radials were tortuous and thickened. Roentgenograms of the teeth disclosed four apical abscesses. There was slight congestion of the optic disks.

*Summary.*—This was an early case of hypertensive cardiovascular disease with good compensation.

### COMMENT

The occurrence of these three cases in a family whose father died of apoplexy at 58 suggests a strong hereditary influence. When Oliver Wendell Holmes was asked how one might live to 70 years, he replied that a man should pick his ancestors 100 years before he was born. Numerous writers have emphasized the important part which heredity plays in determining vascular disease. Osler's [1] references to the quality of tubing with which an individual is endowed are well known. Williamson [2] suggests that the difference between good and bad arteries is like that between a well tempered spring and one of inferior material. Warfield [3] says that we may even speak of congenital arteriosclerosis in that our parents determine the character of the tissues with which we start in life. Ringer [4] quotes Stockard as saying that every person dies from the disease with which he is born, and that during the period of differentiation in embryonic life the organ which is the weak link in the chain is marked out. Even sound vessels may degenerate early if subjected to unusual abuse, while those who are unfortunate enough to commence life with a poor quality of tubing may, by the exercise of unusual care, have their vessels endure for the usual length of time.

Essential hypertension in its early stages may sometimes be entirely relieved by the removal of infectious or toxic influences or by changes in manner of living. After organic changes are definitely established, much can still be done to relieve symptoms and to prolong life. In treating a condition which may last for more than thirty years, when the patient often outlives his physician, therapeutic extremes must be avoided. No convincing evidence has ever been brought forward to show that red meats contain more extractives or are more harmful than white meats. It is, therefore, unnecessary to confine the patient to a monotonous diet of white meats. Although an excess of meat is undoubtedly harmful, too great a restriction of total proteins cannot be imposed without impairing the patient's strength and nutrition. Except for shorter periods of time, 1 gram of protein per kilogram of body weight is a fair average to maintain.

### CONCLUSIONS

1. Arteriosclerosis is largely influenced in its occurrence and severity by the quality of vital tubing which the individual possesses.
2. Cardiovascular renal disease is usually a unified complex, the first symptom of which is hypertension.

705 East Genesee Street.

1. Osler, William: Modern Medicine, Ed. 1, **4**: 429, 1908.
2. Williamson, C. S., in Forchheimer's Therapeusis of Internal Diseases **3**: 753.
3. Warfield, L. M.: Arteriosclerosis, St. Louis, C. V. Mosby Company, 1915.
4. Ringer, A. I.: Am. J. M. Sc. **161**: 798 (June) 1921.

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# DIFFERENTIAL CENTRIFUGALIZATION

## A METHOD FOR THE STUDY OF FILTRABLE VIRUSES, AS APPLIED TO VACCINIA *

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AND
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It is difficult to recognize with certainty, under the microscope, the specific infective agent in vaccinia; but since it is present and alive in commercial vaccine lymph, it seemed possible to learn one of its fundamental characteristics, namely, its specific gravity.

Dr. Huntoon of the Mulford Laboratories kindly furnished us with a generous quantity of lymph, which is a viscid turbid fluid containing 2.34 per cent. of glycerin. The specific gravity of this original lymph is 1.1638.

The determinations of the specific gravity in all cases were made by weighing 1 c.c. of the fluid in a small and very narrow test tube accurately calibrated to hold just 1 c.c. up to a mark scratched on the glass.

The original lymph was centrifugalized at high speed for an hour in such a test tube, and separated into a solid mass of sediment, a thick turbid layer and a superficial less turbid layer. It was agreed always to inoculate the top layer on the cornea of the right eye,

* From the Department of Pathology, Johns Hopkins University.

and the bottom layer (taken in this instance just above the sediment) into the left eye. The cornea of the rabbit was barely visibly scratched at the upper conjunctival margin with a keen razor.

In each case a typical vaccine lesion with ulceration appeared in the right eye, while the left remained unaffected.

The top layer was then taken off in a pipet and transferred to another calibrated test tube which was filled up to the mark with Locke's solution. The specific gravity of this mixture at 24 C. was 0.99. After centrifugalization and inoculation as before, all the right eyes were unaffected and all the left eyes "took." In other words, the specific living infective agent was now found at the bottom of the tube. Its specific gravity, therefore, lies between 0.99 and 1.638.

A series of flasks was prepared with mixtures of glycerin and Locke's solution varying in specific gravity from 1.0 to 1.6, and with these suspending fluids the specific gravity of the virus itself was approached from both sides.

Each mixture was weighed in the calibrated test tube, and the specific gravity of the final mixture thus ascertained. Then after centrifugalization the top layer was inoculated into the right eyes and the bottom layer into the left. In this way it was quickly found that the virus floats in a suspending fluid of specific gravity 1.14, while it sinks in a suspending fluid of specific gravity 1.11. Its own specific gravity is probably about 1.12 or 1.13.

To purify it, therefore, it seems best to wash it and centrifugalize it in a suspending fluid just heavier than itself, for thereby a maximal removal of contaminating material will be attained.

When this was completed, the examination of a drop of the virulent top layer under the microscope with dark field illumination disclosed myriads of minute granules, very much smaller than streptococci or staphylococci. These shine dully and show a slight, irregular motion which is probably brownian movement. They occur singly or in small groups, or sometimes in tiny beaded chains. These impress one as about one-tenth the size of a chain of streptococci with the same number of elements. All the particles in this layer are very nearly uniform in appearance, and differ in this respect from the heterogeneous particles found in the minute amount of sediment in the ineffective bottom layer. Those vary in size and shape, and many are very bright and refractive.

The granules in the top layer can be seen under the ordinary microscope, and when they are clumped together can even be seen easily enough with the low power. There are enough to give a slight turbidity to the fluid. They stain faintly with Löffler's methylene blue, are gram negative, do not stain with neutral red or trypan blue, stain blue or red with Wright's stain, and take a fairly deep stain with carbolfuchsin.

With the immune serums at present available, we have not succeeded in causing them to agglutinate; but if this can be done in later experiments, it should have some weight in showing their relation to the disease. It is even more important to be able to cause them to multiply in culture in connection with growing epithelium (Lambert and Steinhardt), and to observe clearly their multiplication.

These granules are apparently identical with those seen in tissues and smears from vaccinia and smallpox by Prowazek, Paschen, Hallenberger and others. The method of isolation which we have described affords so good an opportunity for their further study that we cannot properly make a statement as to their etiologic relation until that study has been completed.

It is especially the method of differential centrifugalization with the use of suspending fluids of different specific gravities which we wish to emphasize. This method makes it possible to isolate and concentrate in suspension the infective agent of vaccinia, which can be contaminated only with other materials of the same specific gravity. It may afford a procedure for the purification of vaccine lymph from bacterial and other contamination, and lastly, but most important, it seems to be a method applicable to the study of a long series of diseases in which the infective agent is as yet unknown or very difficult of isolation. Smallpox, chickenpox, measles, scarlet fever, influenza, dengue, typhus fever, rinderpest, rabies, common colds, epidemic (lethargic) encephalitis and a host of other less common conditions occur to one at once as promising a possibility of approach from this angle. Even poliomyelitis, well as it has been studied, might yield new information through the application of a method which may permit the isolation and concentration of the virus. Because it is easily transferred experimentally to animals, we hope to work in the same way with rabies.

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## FAMILIAL BLADDER ATONY

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Atony of the urinary bladder is a common clinical acquaintance. The acute form is often seen following surgical procedures, especially those involving the pelvic region. Chronic cases are conveniently divided into those which follow mechanical obstruction to the urinary outflow and those which accompany spinal cord disease. There is a third, but very much less usual condition of bladder atony with retention, dribbling and varying amounts of residual urine in which no obstruction exists and no spinal cord disease can be found. Walker,[1] in 1910, reported a series of twelve such cases and offered as explanation a lesion in the hypogastric or hemorrhoidal plexus, producing either detrusor weakness or sphincter hypertonicity.

Other authors, among them Shattock,[2] Williams,[3] Rayner,[4] Casper,[5] Vassalo[6] and Duer,[7] have described individual instances of these conditions. Vassalo's patient, a native of Uganda, when first seen had a residual of 2½ pints (1,183 c.c.) but recovered bladder function under treatment. Casper's patient had a small diverticulum, Shattock described ureteral dilatation and double hydronephrosis. Rayner's case was one of dystocia due to an enormous urinary bladder in the fetus; necropsy showed no obstruction. He suggests that the difficulty may have been due to disturbances of sphincter detrusor balance or hyposensibility of the bladder mucosa.

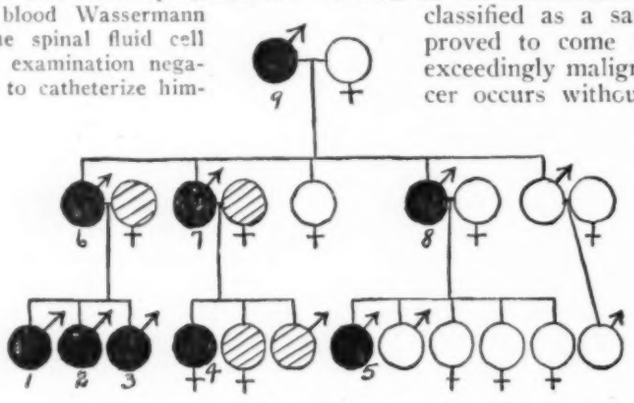
The occurrence of several individuals with bladder atony of this type in one family seems not to have been reported. A family group in which bladder trouble is considered, by the male members at least, a part of the common heritage is herewith described with such completeness as is possible. The members are widely scat-

1. Walker: Ann. Surg., November, 1910, p. 577.
2. Shattock: Proc. Roy. Soc. Med. **2**: 88, 1908-1909.
3. Williams: Tr. Path. Soc. **39**: 152, 1888.
4. Rayner: Brit. M. J. **2**: 1384, 1892.
5. Casper: Berl. klin. Wchnschr., March 7, 1910, p. 425.
6. Vassalo: Lancet **2**: 599 (Sept. 18) 1920.
7. Duer: Indian M. Gaz. **37**: 394, 1902.

tered over two continents, and more exact details seem unattainable.

CASE 1.—A man, aged 38, had nocturnal frequency, hesitancy, and straining, though ardor urinae was present. The history was negative for syphilis; there had been two or three attacks of gonorrhea, one with epididymitis. Physical examination detected nothing remarkable in the heart, lungs or abdomen. There was no evidence of any nervous disease. The reflexes were all present; stasis was good; no motor or sensory defects were made out; the external genitalia were normal. The patient voided 300 c.c., after which a large, soft rubber catheter was passed with ease and 300 c.c. more of turbid, strongly ammoniacal urine, containing numerous pus cells, but no casts, was withdrawn. Nine days later the patient voided 400 c.c., and the catheter withdrew 450 c.c.; the urethra was not elongated, nor was the prostate enlarged. Cystoscopy revealed contracture of the vesical neck; just above and behind the right ureteral orifice was the mouth of a diverticulum; there were no sulci or thickening between the shaft of the instrument in the urethra and the finger in the rectum. The diagnosis was: contracture of the vesical neck; vesical diverticulum. The endoscopic report confirmed the contracture of the internal sphincter; the verumontanum was granular and red. At the first cystoscopy it was thought that there might be a very slight median bar present; this was not confirmed. The scrotal and lower spinal reflexes were possibly sluggish. The blood Wassermann examination was negative. The spinal fluid cell count was 3; the Wassermann examination negative. This patient was advised to catheterize himself twice a day and follow with protargol instillations.

During the discussion of the nature of this difficulty the patient volunteered the information that his two younger brothers were both using catheters under the advice of a urologist, and also that his father had had a similar difficulty. He further gathered such family data as he could get, and the result seemed interesting and suggestive, though there are many evident gaps in our knowledge.




Family relationship: full dots, bladder trouble; shaded dots, no bladder trouble; open dots, bladder history unknown.

There are in three generations five who almost surely, and four more who probably belong in this group described by Walker:

CASE 1.—Reported above

CASE 2.—Brother of Patient 1. The difficulty began at about 30; patient under care of urologist, who has advised regular use of catheter.

CASE 3.—Brother of Patients 1 and 2. The trouble began at about 35; he catheterizes himself under the advice of a urologist. This patient has had syphilis, but the spinal fluid is negative.

CASE 4.—A woman, first cousin to Patients 1, 2 and 3, had acute atony requiring catheterization for some months after childbirth, and recovered under treatment. This case resembles those described by Relihan and Simon,[8] and Duer.[7]

CASE 5.—A man, first cousin to Patients 1, 2, 3 and 4, died at about 40, but was catheterized on competent advice some years before.

CASE 6.—The father of Patients 1, 2 and 3 catheterized himself for many years. Patient 1 is sure that his father, though a relatively young man, had never been advised to have an operation.

CASE 7.—Brother of Patient 6, father of Patient 4, had bladder trouble, difficulty with emptying, the exact cause of which was not known, and was catheterized.

CASE 8.—Brother of Patients 6 and 7, father of Patient 5, had difficulty with bladder emptying, and was catheterized.

CASE 9.—Father of Patients 6, 7 and 8, grandfather of Patients 1, 2, 3, 4 and 5, had bladder trouble of unknown nature.

The accompanying chart sets forth in more compact form the family relationship.

Capital National Bank Building.

8. Relihan, H. J., and Simon, J.: Report of a Case of Paralysis of the Bladder, J. A. M. A. **56**: 743 (March 11) 1911.

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## SURGICAL TREATMENT OF EXTENSIVE BASAL CELL CARCINOMA*

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The pathologic laboratory has been of great assistance in the surgical treatment of tumors and particularly of cancers of the skin. The two general divisions of cancer of the skin are the spinous cell type (Fig. 1) and the basal cell type (Figs. 2 and 3). Each of these is susceptible of many subdivisions.

There is an occasional form of cancer of the skin known as the melanocarcinoma, which was formerly classified as a sarcoma but which has been proved to come from the epidermis. It is exceedingly malignant. Occasionally this cancer occurs without pigment, or with only a trace of pigment, but it follows the same general course as when abundant pigment is present. This cancer springs, apparently, from the deep layers of the epidermis, and in some instances resembles more closely in histologic structure basal cell cancer than spinous cell, though its clinical course is quite different.

Besides these, there are the rarer forms of cancer of the skin, originating from the sebaceous glands or the sweat glands. They are adenomatous in structure.

The division of spinous cell cancer of the skin into four grades by A. C. Broders of the Mayo Clinic has been very helpful to the surgeon. These grades are according to the degrees of differentiation of the cells. The type in which the "pearls" largely predominate, showing a marked tendency of the squamous cells to go through their full life cycle, including the stage of cornification, is the least malignant, and requires the simplest operation. When it occurs on the face, a limited excision, without a dissection of the neck, is usually sufficient for a cure. This kind of cancer is classed as "Grade one." The second grade has fewer "pearls"; the third has very few, and the fourth grade, which is the most malignant, has none at all. The fourth grade of this cancer is rarely cured, even by the most extensive operation. Operation for the second and third grades must be much more extensive than for the first grade, as the growth is more rapid, and the tendency toward metastases is much greater.

Basal cell cancer, or "rodent ulcer" as it is sometimes called, does not form "pearls." Its cells may vary greatly in size and shape from a slender spindle cell to a round cell, and occasionally may assume what appears

* Read before the Southern Surgical Association, Pinehurst, N. C., Dec. 13, 1921.

to be an adenomatous structure (Figs. 2 and 3). This occasional tendency to an adenomatous structure in basal cell carcinoma may be due to the fact that embryologically the cells of the basal layer of the epidermis are more closely related to the sweat glands and the sebaceous glands than are cells of the more superficial layers.

A basal cell cancer is usually less malignant than the spinous cell cancer, particularly if the first grade is excluded. After it has become extensive, however, it is exceedingly difficult to cure. A very interesting fact about basal cell cancer is that it does not metastasize, but extends only by continuity or contiguity of tissue. This is impressive when we recall that a basal cell cancer may occupy the same region of the face as the spinous cell often occupies, and consequently has access to the same lymphatics. The cells are usually smaller than the spinous cells, and should gain access to the lymphatics just as easily as the spinous cells do. It seems most probable that the basal cells are taken up by the lymphatics, but do not find favorable soil, and consequently perish; while the cells of the more malignant grades of spinous cell cancer can grow in the lymph glands and channels.

It may be assumed, then, that there is something in tissues at a distance from the basal cell cancer that causes an insuperable resistance to the cells of this neoplasm. This is not true of the spinous cell cancer, particularly of the more malignant grades, which may flourish wherever they are deposited by the lymph channels.

A crude illustration may show this biologic difference: If there was a field containing dry broom-sedge, and a fire was started in the middle of it, not only would the fire burn from this point, but if there was carried a burning brand to any other part of the field, it would also burn there. This may be likened to the spinous cell type of cancer, in which there is no resistance to destruction by fire, even at a point distant from the original fire. If, however, the field of broom-sedge was damp, and a fire was started in the middle with a sufficient amount of inflammable material to dry the broom-sedge in its immediate vicinity, the fire would extend as far as the heat had dried the broom-sedge. If a burning brand should be carried into other portions of the wet field, it would not start a fire, because the dampness would render the broom-sedge uninflammable, unless the fire was sufficiently large to dry the broom-sedge first. This might be compared to the basal cell type of cancer.

It appears to be perfectly useless to treat an extensive basal cell cancer by operation with a knife. The tissue in the immediate neighborhood of the cancer has had its natural resistance broken down, doubtless by some product of metabolism formed during the growth of the cancer. The cancerous cells are simply implanted on the new raw surface, whose resistance against these cells has been destroyed, and they grow rapidly. In practically all cases that have become extensive, the roentgen ray or radium has been tried and has failed, so but little can be expected from this source.

The principles that appear to underlie the surgical treatment of extensive basal cell cancers demand, first of all, that the surface of the cancer be destroyed and sealed by cautery so that transplantation of cancer cells will be avoided; secondly, that the excision be done as far as possible with the electric cautery and the raw surface be further cauterized after the excision has been completed, and, thirdly, that the raw surface be covered as soon as possible by tissue from a distance, where the normal resistance to cells from a basal cell cancer has not been destroyed.

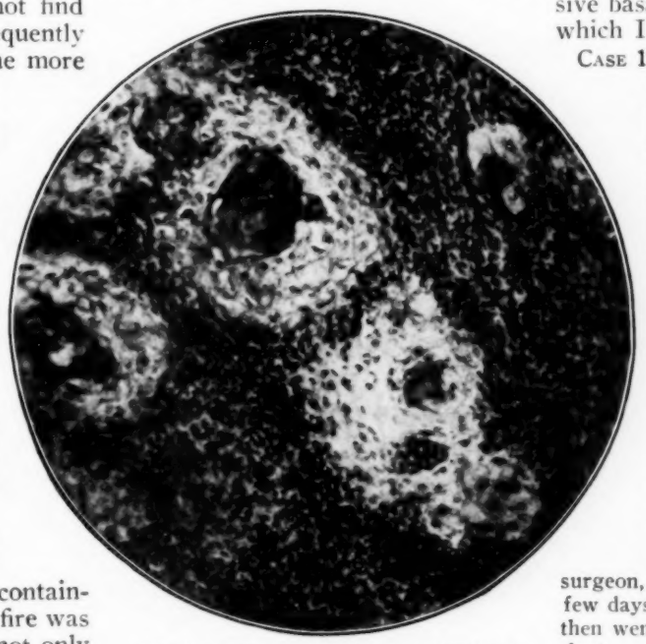

Fig. 1.—Reproduction, slightly reduced, of a photomicrograph, × 125, of a spinous cell type of squamous cancer, showing definite "pearls," which do not occur in basal cell cancer.

## REPORT OF CASES

The application of these principles can best be elaborated by a description of two cases of very extensive basal cell cancer of the face in which I have operated:

CASE 1.—G. K. P., a man, aged 49, white, a lawyer, was admitted to St. Elizabeth's Hospital, Richmond, May 1, 1920. The Wassermann reaction was negative. The patient had had considerable albumin in the urine for many years. He had also suffered occasionally from "stomach trouble." There were a few casts, but the patient's nitrogen blood urea on admission to the hospital showed renal function about normal. About fifteen years ago a small mole on the patient's left upper lip was injured by a barber while combing his mustache. A small ulcer formed, which for two years alternately healed and broke down. He was operated on by a local surgeon, and the ulcer healed, but in a few days broke down again. The patient then went to an advertising cancer-paste doctor, who applied a paste, but the disease recurred. He had been operated on by a number of surgeons, and had tried many different remedies, ranging from the advertising cancer cures to the application of radium in large quantities by skilled hands. The growth would sometimes be retarded for a while, and would remain apparently cured for several months, but eventually broke down again.

After a thorough examination, and particularly after a careful test of the kidney function by blood chemistry and by phenolsulphonephthalein, it was thought that he could take ether satisfactorily (Fig. 4). May 6, after the administration of ether in the usual manner, a transverse incision was made in the upper part of the trachea, and a tube inserted through which the ether was then administered. The mouth was opened, and the pharynx thoroughly packed with moist gauze. The cancer, which had extended so that it had destroyed the upper lip, part of the nose, and most of the anterior part of the alveolar process, was well cauterized with the Percy cautery. The mass of tissue was then excised with a sharp electric cautery down to the bone, and the bone was divided with chisel, rongeur forceps and electric rotary saw. The raw surface was immediately cauterized with the Percy cautery, and packed with iodoform gauze. The wound in the trachea, which was transverse, was closed, and a flap was outlined on the left side, with its base near

the lower jaw and the body of the flap over the left pectoral region. The pedicle of the flap was dissected up, and its edges were brought together with a continuous suture of catgut, according to the method of Gillies, making a cord of the pedicle. The margins of the skin beneath the pedicle were undermined and united.

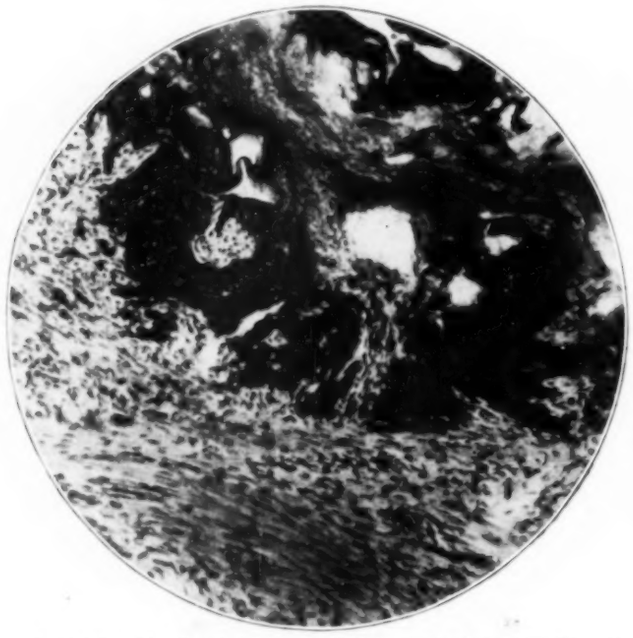

Fig. 2 (Case 1).—Basal cell cancer. The upper border shows the results of the cauterization, which was done before the excision. In spite of a thorough cauterization, there were areas in which the typical cells of a basal cell cancer were found. Slightly reduced from a photomicrograph. × 155.

Seven days later, under local anesthesia, the upper part of the flap was dissected free, and two Thiersch skin grafts from the left thigh were applied. Eight days later, still more of the graft was freed, and Thiersch grafts were applied, and the same procedure was repeated eleven days later (Figs. 5 and 2).

June 9, thirty-five days after the original operation, the flap was completely severed, and the remaining raw surface on the flap was covered with Thiersch grafts. July 2, the upper border of the flap was denuded, dissecting back the epithelial surface on both sides, and after further denuding the right side of the defect in the face, the flap was applied to the face. July 7, the anterior surface of the hard palate was denuded, and corresponding denudation was done on the inner surface of the flap, on which Thiersch grafts had been applied. The margins of the wound on the face were freely denuded and dissected up, and the flap was applied carefully to all of the old area where the cancer had been excised (Fig. 6).

After a week the pedicle of the flap was compressed by soft-bladed forceps for about a half hour each day, and on August 4 the pedicle was completely severed and the base of the flap sutured into position. The pedicle was unfolded, and used to cover as much of the raw surface on the neck and chest as possible. The graft took satisfactorily.

Jan. 8 and Feb. 23, 1921, some plastic work was done on the flap in order to improve the cosmetic appearance and to cover an area from which the flap had retracted. The patient was advised to have a dentist fit him with a plate which would supply him with teeth for the upper jaw. There was a good molar tooth on each side of the upper jaw, and it was quite possible to use these as points of fixation. However, while the dentist was fitting the plate it slipped, and lodged for a short time in the patient's pharynx. This experience was so disagreeable that he has never been induced to have any further dental work done; without which, of course, the cosmetic results cannot be greatly improved.

The patient suffered a sudden severe abdominal pain, April 4, 1921, for which he was admitted to St. Elizabeth's Hospital. A careful examination by Dr. Warren T. Vaughan, and roentgenoscopy, revealed no lesion in the abdomen, but a marked dilatation of the thoracic aorta. The pain seemed to be anginal. After a few days it gradually disappeared, and the patient's general condition improved. When seen, recently, three weeks ago, he was in good general condition, and there was no sign of any recurrence of the cancer, more than eighteen months since the operation.

CASE 2.—Mrs. D. W., aged 55, who had mitral stenosis, was admitted to St. Elizabeth's Hospital, Sept. 27, 1920. About twenty years ago there was a small pimple on the left side of the nose, which bled profusely after she had scratched it. Various salves were applied without success. It was treated with the roentgen ray, which relieved the patient for several years. A small ulcer then formed between the eyes on the forehead. This healed, and later the tip of the nose was affected in a similar way. The patient had radium applied in Baltimore on four different occasions, the last one being Aug. 26, 1920. The cancer involved the right cheek and right upper lip and nose.

September 28, the trachea was opened transversely and the anesthetic was continued through the tracheal tube, the procedure being similar to that described in the previous case. The pharynx was then packed with moist gauze, and the cancerous area was thoroughly cooked with the Percy cautery. The margins of the cancer were removed with a sharp electric cautery, and the bone with rongeur forceps. A flap was outlined on the right side of the neck and chest, with its base near the right jaw. The pedicle of this flap was treated as in the previous case. A flap was also outlined on the forehead, with the base of the pedicle over the right temporal region, and the lower margin of the flap over the right eye. The packing was removed from the pharynx and the trachea closed.

At intervals of several days the flaps were gradually dissected up under local anesthesia, and were finally transplanted into the region of the defect. November 19, a small spot of recurrence on the mucosa of the left upper lip was removed with the electric cautery. December 17, the pedicle of the flap from the neck was divided under local anesthesia. Jan. 3, 1921, the pedicle of the flap from the forehead was divided. On account of the location of the disease, it was impossible to get the raw surface of the flap fitted to all the raw surface

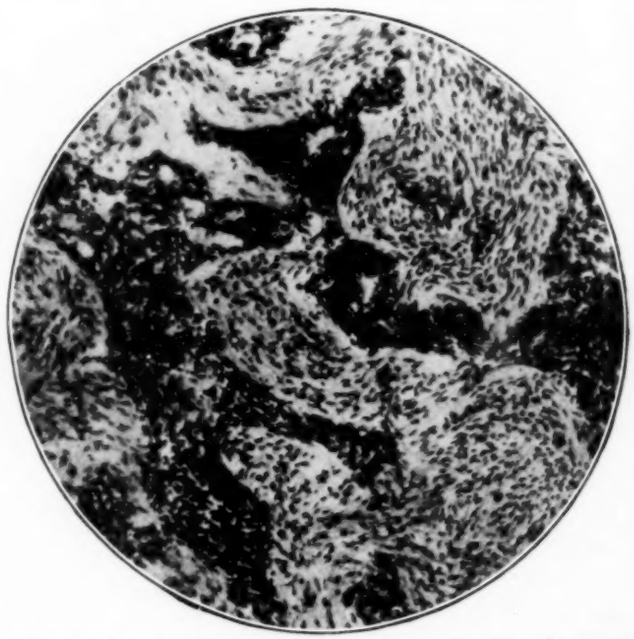

Fig. 3 (Case 2).—Basal cell cancer. This area is from the mucous membrane. The cells penetrated rather deeply along the margin of the mucosa, but apparently never more than about one-quarter inch (6 mm.) from the edge of the ulcreated area. The most recent recurrence beneath the lower eyelid shows the basal cells rather round in shape. There is some tendency toward an adenomatous-like arrangement in certain areas of this photomicrograph. Slightly reduced from a photomicrograph. × 155.

left by excision of the cancer. This was due to the fact that the right antrum of Highmore was widely opened, and was filled by a flap with the epithelial surface within. An effort was made to denude the flap and apply it where the cancer was excised. On the left side of the face it was impossible to make permanent contact at all points because of tension, and at the floor of the antrum the raw surface could not be covered by the raw surface of the flap.

Feb. 4 and March 3, 1921, plastic operations were done to cover the defect over the bridge of the nose from which the flap had pulled loose. April 20, there was a recurrence of basal cell cancer in the inner portion of the wound in the hard palate. At this point the skin surface of the flap from the neck rested, and no raw surface from the flap. This area of recurrence was about one-half inch (1.3 cm.) in length, and was excised under local anesthesia with the electric cautery, some of the bone being also removed. A subflap was cut from the main flap that had been turned in from the neck, and was sutured to this defect in the palate, after a small flap had been dissected from the rest of the hard palate in order to make the union more secure.

July 23, there was a recurrence on the lower border of the anterior portion of the vomer and along the left edge of the upper jaw. The areas were thoroughly cauterized, the bone and part of the septum with the vomer were removed with rongeur forceps, and the raw surface was again cauterized. A flap was made from the frontal flap that had been turned into the defect, and was sutured over this raw surface. The sutures cut loose, however, and the flap soon retracted.

Fig. 4 (Case 1).—Basal cell cancer before operation.

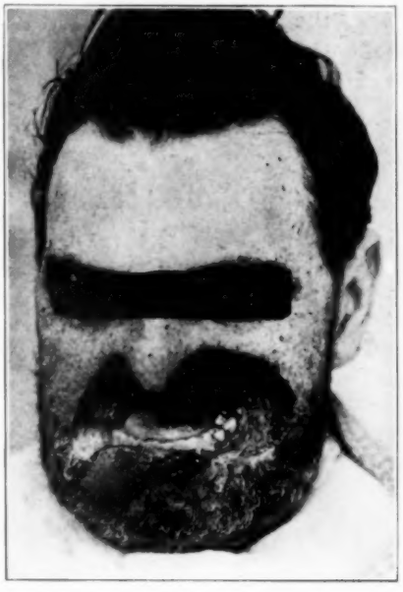

Fig. 5 (Case 1).—Condition of the mouth sixteen days after operation. The slough had not yet fully separated. The flap in the neck had been outlined, but does not show here.

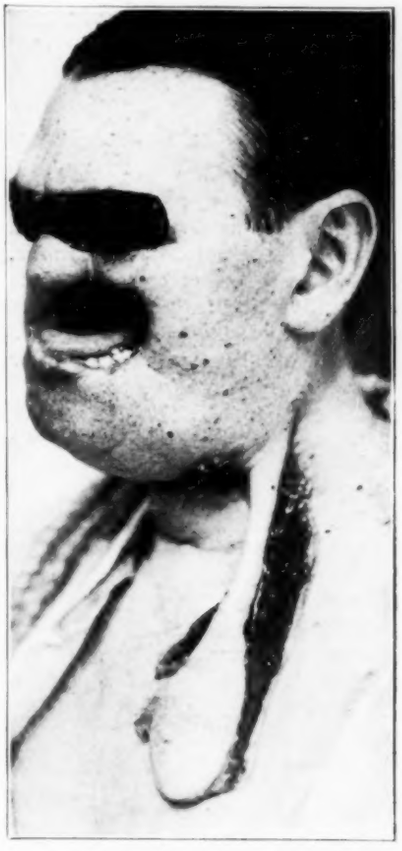

Fig. 6 (Case 1).—About a month later. The slough had separated, and the wound had partially healed. The flap in the neck had been gradually dissected free, and its under surface is covered with Thiersch grafts. It is ready to be transplanted to the region of the upper lip, according to the method described in the text.

September 24, there was a small point of recurrence along the anterior part of the stump of the alveolar process on the right side, and a small suspicious spot on the upper left side. These points were cauterized with the electric cautery, removed, and again cauterized. It seemed impossible to cover the point at the stump of the right alveolar process with tissue from the flap, so the nearest portion of the flap was cauterized, with the hope of making a raw surface that would become adherent.

Instead, however, of becoming adherent, it retracted further, and in November, 1921, there was a recurrence again at this place and also in a small mass beneath the lower right eyelid. Both of these recurrences were removed with cautery in the usual manner, November 28. A plastic flap was arranged from the original flap by dividing the original flap vertically into two pieces and cutting it so the raw surface would cover the region where these recurrences were. The patient is still under observation.

## COMMENT

In every instance in which there was a recurrence, it was at a point where the raw surface of the transplanted flap had not grown. Where the raw surface of a transplanted flap had become attached, even for a period as long as a week, and had subsequently pulled away, there was no recurrence. If the flap pulled away within two or three days, recurrence was occasionally noted in this area. In no single instance, however, has there been recurrence where the raw surface of the transplanted flap had grown to the raw surface left by the excision of the ulcer. On account of the extensive and unusual location of the cancer, it was impossible to apply the raw surface of a flap in a satisfactory manner to all of the raw surface left by excision of the cancer at one operation without making the incisions of such a character as would have jeopardized the nutrition of the flap. These facts concerning the points of recurrence in this case seem to emphasize most strongly the apparent inhibitive power of tissue taken at a distance from a basal cell cancer over the growth of cells from this neoplasm. Though there have been numerous recurrences, the observed facts here tend even more strongly to confirm this principle than in the preceding case, in which there was no recurrence.

It seems logical to conclude, therefore, that in extensive basal cell cancers, in addition to cauterization and excision with a cautery, an important principle is to apply as soon as possible, to the raw surface from which the cancer was excised, the raw surface of a pedunculated flap transplanted from a distance. It was formerly thought that plastic operations for defects

caused by the extirpation of cancer should not be done until it had been determined, after the lapse of months or of years, that there would probably be no recurrence. The idea seems to have prevailed that it would be useless to transplant a flap when cancer might recur beneath it. With basal cell cancer, however, this practice appears to be erroneous, and a flap from a distance should be applied as soon as possible after the excision of the cancer, for the flap seems to add an additional obstacle to the growth of the cancer by interposing its own natural resistance to the cancer cells.

## A SACRAL TERATOMA CONTAINING AN EMBRYONIC SCAPULA

ALBERT H. MONTGOMERY, M.D.
CHICAGO

The sacrococcygeal region is frequently the site of congenital tumors. In the embryologic development of that part of the body, remnants of such structures as the neurenteric canal, the postanal gut, the proctodeal membrane, and the coccygeal remains of the neural canal may persist. These fetal formations, which normally undergo involutions, may be the basis of certain tumors. Also, the lower portion of the spine is frequently the site of developmental defects of the vertebrae giving rise to spina bifida and spina bifida occulta. These defects may be accompanied by meningoceles from protrusions of the spinal cord or its membranes, or, in rare cases, by herniations of such abdominal organs as the bowel or bladder.

Congenital tumors in the sacral region may grow anterior to the spine, pushing forward the rectum and bladder and appearing in the pelvis or about the perineum. Pressure against the genital organs or neighboring muscles of the thigh may interfere with the growth and function of these structures. The size of the tumor may vary from that of an orange to a mass large enough completely to fill the pelvic cavity. Many of these presacral tumors are cystic. Wernher [1]

Fig. 1.—Sacrococcygeal teratoma forming pseudotail (lateral view).

regards them as congenital cystic hygromas. G. G. Davis [2] has described these cysts very thoroughly in an article in which he reports one of ependymal origin containing nerve elements. The cysts vary greatly in shape and may have a broad or pedunculated base.

Another group of tumors is located on the back, posterior to the spine. They are covered with skin, which may be normal but which is often very thin from stretching, or, in some cases, apparently thickened for protection. On account of the exposed position of these tumors, the skin overlying them is frequently subjected to trauma and infection, either during labor or after birth, with resulting suppuration. The base of the tumor may be sessile; but very often it is pedunculated so that the mass hangs downward, somewhat resembling a tail. This similarity is even more pronounced when one finds occasionally a tuft of hair growing from one of these caudal appendages. Many of these pseudotails are masses of fatty tissue, often containing some muscle or nerve fibers. Sometimes they are associated with a spina bifida occulta, and the tumor is attached to the bony fissure by a fibrous fatty pedicle. In the case reported in this article, the tumor was a pedunculated fatty mass; but it contained no muscle or nerve elements. Possibly it may have come from the extradural fat tissue.

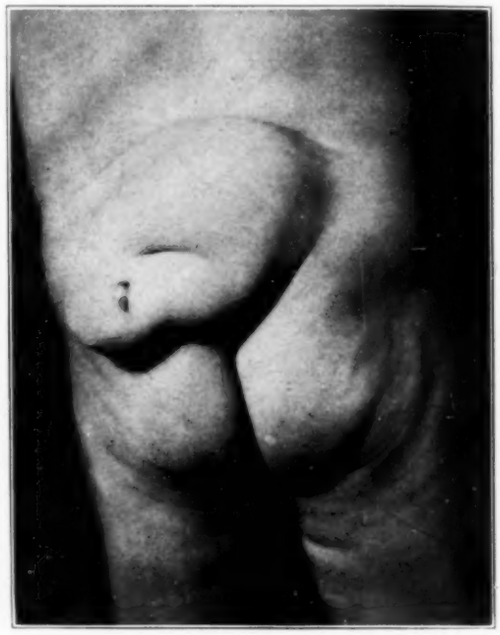

Fig. 2.—Sacrococcygeal teratoma viewed from above.

### CLASSIFICATION OF CONGENITAL SACROCOCCYGEAL TUMORS

Pathologically, aside from the ordinary lipomas and lymphangiomas, congenital sacrococcygeal tumors have been classified by Ewing [3] as follows:

1. *Dermoids, Simple or Complex.*—There are cystic tumors derived from some of the embryonic structures mentioned above. As pilonidal cysts, they occur very frequently in the midline posteriorly. Sometimes they undergo suppurative changes and have often been mistaken for tuberculosis of the sacrum. The more complex dermoids contain teeth and nails, as well as hair and sebaceous material. Dermoids may be found along the raphé of the perineum or scrotum or in front of the sacrum.

2. *Teratoid Tumors.*—The neoplasms in this group are composed of cells derived from all three layers of the embryo. Wilms designates them as "embryoid tumors." The cells form all sorts of irregular mixtures; but there is a definite absence of any highly developed rudimentary structures. They are solid or polycystic growths and usually form anterior to the

1. Wernher, A.: Angeborenen Kysten Hygroma, Giessen, 1842.
2. Davis, G. G.: Congenital Sacro-Coccygeal Cyst of Ependymal Origin, J. A. M. A. **54**: 1228 (April 16) 1910.
3. Ewing, James: Neoplastic Diseases, Philadelphia, W. B. Saunders Company, 1919.

sacrum. As a rule, the spinal dura is not involved and only in rare cases is the tumor attached to the bone. Tumors of this class are frequently found in the testicle or ovary.

3. *Teratomas.*—This group comprises those tumors which contain highly developed fetal structures. It embraces a series of tumors which grade up from the indefinite mixtures of the teratoid type to the double malformations included in the class of fetal implantations. The teratomas contain organs, or well developed rudiments of organs which are not related to the neighboring structures. They are usually stituated posterior to the sacrum; but they may occur at the anterior position. They may be cystic or solid and very frequently exhibit both forms of structures in the same tumor. Often they are covered by periosteum or attached to the spine by a pedicle. All sorts of fragments of the body, in various stages of development, have been found in these tumors; bones, joints, organs, such as the kidney, intestine, thyroid and lungs, legs, arms and heads have been reported in the literature. In the case described herewith a well developed right scapula was found in a mass of fatty tissue. Sacral teratomas are often accompanied by a spina bifida, with associated meningocele or myelocele. In other cases, the spinal fissures may be closed so that we have the condition of spina bifida occulta with a persistence of the dural herniation. Malignant changes may take place in teratomas resulting in angiosarcomas or myxosarcomas.

4. *Fetal Implantations.*—In this class is placed the fetus in fetu. These vary from the poorly developed monsters up to such highly developed types as the Siamese twins.

The origin of sacral teratomas is not always definite. Bland Sutton [4] says that many of them are of monogerminal origin and occur on account of a strong tendency to budding in this part of the body in all animals. When the tissue or organ in the tumor is similar to that found in the region of the body in which the tumor is located, it is probably of monogerminal origin. This is especially true if the tumor is associated with a spina bifida. In the growths of bigerminal origin, the tissue in the tumor has no similarity to the neighboring organs and the neoplasm represents a suppressed fetus or twin.

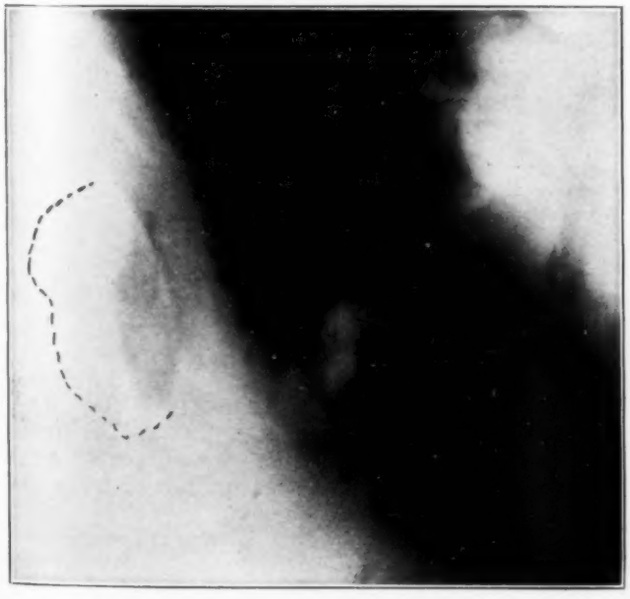

Fig. 3.—Roentgenogram showing shadow of scapula within the tumor outlined.

4. Bland Sutton, J.: Tumors, Innocent and Malignant, New York, Paul B. Hoeber, 1918.

For the diagnosis of these teratomas, a good roentgen-ray examination is of considerable assistance. The bone in the tumor mass in our case cast a dense, heavy shadow. It was also easily palpable. Lipomas and lymphangiomas must be considered. Because of the operative dangers, a neurologic examination should be made to differentiate a teratoma from a meningocele, especially when the latter accompanies and forms a part of the teratomatous growth. The sacral location should always suggest a teratoma; but often the diagnosis will remain uncertain without a careful exploratory operation.

Fig. 4.—Reproduction of full sized drawing of right scapula found in the sacrococcygeal teratoma.

## REPORT OF CASE

*History.*—A. S., a white boy, aged 5 months, was brought to the Children's Memorial Hospital, March 9, 1921. The mother stated that the child was born at full term after a normal pregnancy and labor. At the time of birth, a peculiar mass was noticed attached to the child's back. Since then, the mother had noticed no change in the size or consistency of the mass. The child seemed to be unaffected in any way by the tumor and had always been well.

*Examination.*—The baby was apparently normal except for a pedunculated tumor attached like a tail in the median line at the lumbosacral portion of the back. The tumor, about the size and shape of a pear, was covered with normal skin. It hung downward and slightly to the left. The greater part of the mass felt soft and cystic; but in the center, a hard substance about 6 cm. long was palpable. This bonelike portion was slightly movable in the soft bulk of the tumor. Irritation of the tumor did not provoke any responsive movement. The child had apparently no pain or discomfort on account of the deformity. Neurologic tests revealed no evidence of any impairment of motion or sensation in the legs or buttocks (Figs. 1 and 2).

Roentgenograms showed an irregularly shaped, dense, bonelike shadow, not attached to the spine, lying longitudinally in the center of the lighter shadow of the tumor (Fig. 3). There was no defect demonstrable in the bony outline of the vertebrae.

*Operation.*—March 11, 1921, under ether anesthesia, an incision was made longitudinally over the tumor, and the skin covering was dissected off down to the pedicle. This was found to be a fatty fibrous stalk which emerged through an opening in the fascia, about 1 cm. in diameter, just below the spinous process of the last lumbar vertebra. The pedicle was cautiously severed; but there were no signs of nerve tissue and no escape of spinal fluid. The opening in the fascia was closed by imbrication and the skin sutured. The child made an uneventful recovery.

*Pathologic Report* (Dr. W. G. Hibbs, pathologist to the Children's Memorial Hospital).—The specimen submitted to the laboratory weighs 145 gm., and measures 9 by 6.5 by 4.3 cm. It is cylindric in general outline and consists of coarsely lobulated fat tissue. The tip of the tumor is symmetrically covered with skin, 3 mm. thick, the edge of which is sharply defined from recent surgical removal. The remaining portion of the skin was apparently dissected away to repair the wound made by removal of the pedicle. On incision longitudinally into the mass of fat tissue, a hard substance is found intimately adherent to this tissue. When this is dissected away, a well formed right scapula is disclosed, with all of the normal landmarks, except that the infraspinous and subscapular areas are generally smooth instead of being normally grooved by muscle attachments. The scapula measures 6 cm. from the tip of the acromion to the vertebrae border and 7 cm. from the tip of the median angle to that of the inferior angle. The tissue adherent to the scapula is only fat, which is confirmed by microscopic sections made from several different places.

COMMENT

The teratoma in this case was possibly of monogerminal origin as it occurred in a location somewhat near the scapula and was attached by a fatty pedicle to a probable closed fissure in the spine. However, it was not close enough to the scapular region definitely to rule out the possibility of a bigerminal growth. The child had two normal scapulae demonstrable in the roentgenograms and by palpation. The full sized drawing (Fig. 4) of the scapula found in the tumor was made in the pathologic laboratory of the hospital. Unfortunately, the bone itself was removed from the laboratory before a photograph of it could be made.

122 South Michigan Avenue.

## THE TREATMENT OF STRUCTURAL SCOLIOSIS AT THE MASSACHUSETTS GENERAL HOSPITAL*

ARMIN KLEIN, M.D.
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Severe structural scoliosis is being treated at the Massachusetts General Hospital on the assumption that, with our present knowledge of the subject, scoliosis cannot be cured. We therefore direct all our attention toward improving the symmetry of the patient so that, with proper training, the muscles may become adequate to compensate for the deformity.

We rotate the pelvis and thorax on each other, so as to rearrange the parts of the thorax and to bring them nearer to the center of gravity. Thus the force of the muscular resistances is transmitted through the thorax to cause a gradual change in shape, with the help all the time of the respiratory forces. In other words, we employ the peripheral stresses resulting from the rotation treatment plus the respiratory forces, cultivated beforehand by intensive training, to correct the deformity.

There is no attempt at overcorrection; for the moment we must apparently be satisfied with an "apparent cure." Even if, at the end of the course of treatment, roentgen-ray examination of the thorax reveals a spine not completely straight, we are contented if we have achieved an apparently straight spine, as indicated by marking out the spinous processes on the skin, and have trained the patient to use his muscles to maintain a correct position. Invariably, the roentgen-ray examination does prove that the intercostal spaces, which are sometimes obliterated previous to treatment, are always opened wide, thereby furnishing the organs in the thorax with a more capacious housing. Of course the advantage of all this is obvious. Also, if perpendiculars drawn from the axillae to the ground both clear the hips, and the shoulders are level, so that the patient can then at least look normal, he is no longer singled out as a cripple.

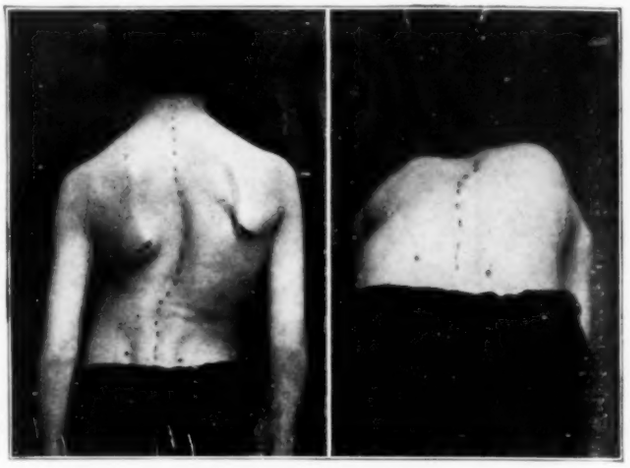


Fig. 1.—N. C., aged 14, standing and in the forward bend position. The first corrective jacket was applied one month later.

Once we have the patient in this symmetrical position, it plainly becomes much less of a task for the muscles and ligaments to maintain the body in balance. The erector muscles of the spine, and in fact the accessory muscles also are then strengthened by continuous exercise, not infrequently to the point of hypertrophy of these muscles. At any rate, they are brought to the state in which, with the aid of some auxiliary support, such as a brace, they can adequately compensate for any remaining deformity, so as to allow the individual to assume the various postures required during the day's activity. No one stands absolutely erect continually. The normal person never stands at attention or with a straight spine all of the time. He shifts from one posture to another, symmetrical or asymmetrical as the case may be. But the average of these postures is one of good balance, one of symmetry. This is the state we aim at for our scoliotics, namely, the ability to average, throughout the different positions they are forced to assume during their daily activity, a mean state of symmetry. Once they have attained this power to balance themselves symmetrically, they can go about unafraid of detection of any deformity, and with a free and easy mind toward doing their duty, broadly speaking, as useful citizens.

Our treatment for scoliosis is not designed to be a hindrance to the fulfilment of their duties, for our patients are not "hospitalized." They are not kept, as

* Severe cases due to anterior poliomyelitis are not included in this discussion. Once their symmetry has been improved, a spinal fusion operation is the logical procedure, as in those cases there is no complete set of muscular supports to rely on for compensation of the deformity.

is so often the case, for a long period of time out of school, away from their families and friends, in a hospital, in an attempt at correcting their deformity, only to be thrown back on the world at a later date, unfitted by that time for their surroundings, and, worst of all, often unrelieved of their deformity. We do not take the patient out of his peculiar routine of life. We treat him in the outpatient department with others of his own age and standing, and at most he is only about three hours a week in the hospital. The rest of the time he is in school with others of his class and he lives at home. There he can get the training and stimulation that he cannot in a hospital; and it seems incontrovertible that it is the inherent right of every child, whether or not he has a scoliosis, to have this training and stimulation. Then again, after a preparatory period of intensive training in exercises, the corrective treatment in plaster is not maintained, as was formerly the case, for so prolonged a period that the patient suffers a marked atrophy of the parts encased in the plaster jacket. We do, to be sure, very often keep the patient under treatment for a long time—in fact, it is our custom now not to accept patients into the clinic unless they agree to a strict attendance of from two to three years, with the understanding that they are to be treated as the surgeon in charge sees fit. During that period the corrective casts are not maintained in a continuous unbroken series. On the contrary, there are alternating periods of exercises and corrective plaster casts. In this way there is no marked atrophy resulting, and the physical condition of the patients throughout the course of treatment is really better than what was normal for them before the treatment was instituted. Incidentally, we have also found that we obtain more correction by alternating the corrective cast periods and exercise periods over a certain space of time than by maintaining an unbroken series of corrective casts over that period.

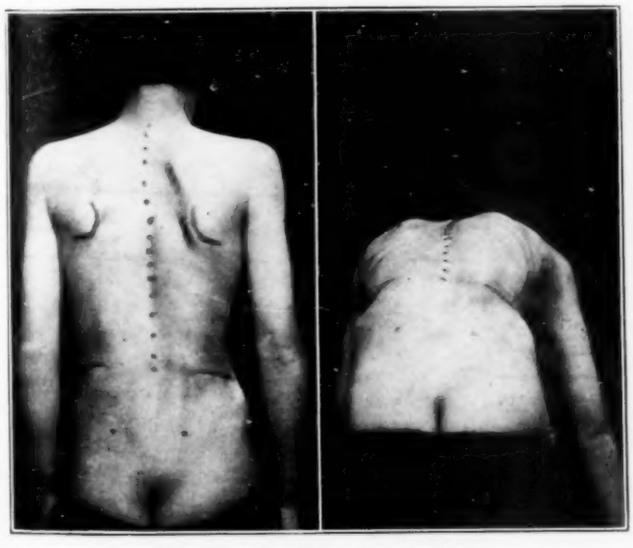


Fig. 2.—N. C., fifteen months later.

While maintaining a better physical condition of the patient under treatment, the morale of the patient is not neglected. Practically all our patients go to school, or to work, as they would if they had no scoliosis. They are allowed to do as they please, and to play whatever games they can, hampered as they often are with about 5 to 7 pounds (2.25 to 3 kg.) of plaster jacket. It is a source of satisfaction to see the happy, shouting children undergoing treatment in the clinic. It is often really necessary to send them home after their task for the day is done. Only once in the course of the treatment is there ever any complaint of discomfort from the treatment, and that sometimes happens at the application of the first corrective jacket. For the initial twenty-four to forty-eight hours, after the first plaster has been applied, they are occasionally uncomfortable in their rigid shells, but after that the patients become accustomed to their restrictions and are generally quite happy and contented. This freedom from nagging discomfort seems to us of great importance, as while we are striving to correct a bad deformity of the body we may induce a worse deformity of the disposition.

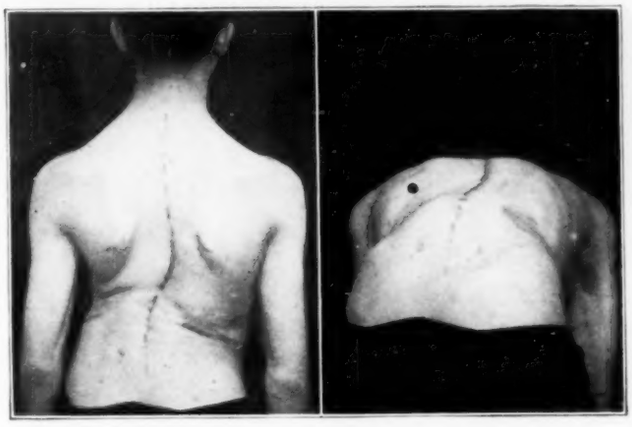


Fig. 3.—B. R., aged 15, standing and in the forward bend position. The first corrective jacket was applied five months later.

### TREATMENT

Definite rest periods are prescribed for all our patients. It is, of course, questionable whether or not scoliotic deformities can be attributed primarily to fatigue. At any rate, it seems definitely certain that fatigue will increase any existing pathologic curve in the spine. Therefore to obviate as much of this as is possible, patients are ordered to take twenty minute rest periods three times a day, many of them in plaster shells, the rest on hard, flat surfaces, such as a table or the floor.

To start things off as well as possible, all our patients are examined as a matter of routine in the medical outpatient department. Thus we are assured in advance that the general physical condition of the patients warrants their being exercised strenuously. The nutrition clinic is also consulted about all cases overweight or underweight. Then as soon as their roentgenograms, tracings of their spines, and photographs are taken, the exercises are begun. These records are thus taken: Roentgenograms of the complete spine in the anteroposterior diameter and with the patient in a recumbent position are taken. Photographs in the erect and forward bend position are taken now, with a stereoscopic camera and in the Osgood-Bucholz [1] frame. The tracings are made as follows: The spinous processes are marked with a skin pencil while the patient stands erect. A piece of ordinary tracing paper is applied to the back to fit its contours accurately, and is held in place by bits of adhesive plaster. The markings of the spinous processes are then easily transferred to the tracing paper, and with a spirit level a perpendicular is

1. Bucholz, C. H., and Osgood, R. B.: A Frame for Standardizing Photographic Records of Scoliosis, Am. J. Orthop. Surg. **12**: 77. 1914.

drawn up through the fold of the buttocks. This gives a graphic record of the deviation and displacement which is comparable with previous or later records of this set. The two records to be compared are placed together in such a way that the perpendiculars are superimposed, and then it is obvious whether or not

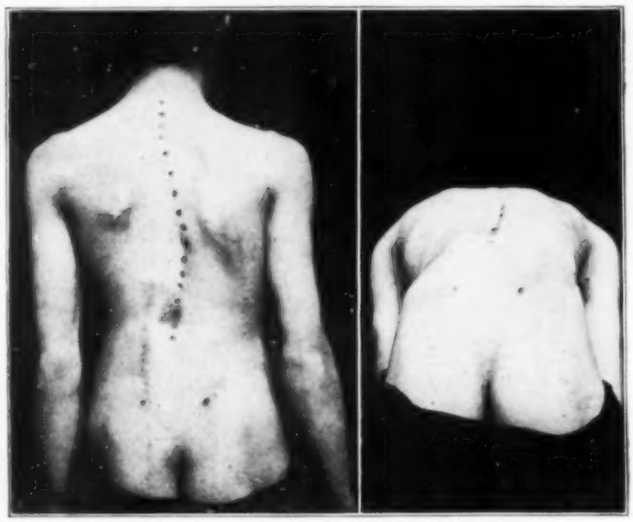


Fig. 4.—B. R., after three months of corrective plaster jacket treatment.

there has been a change in the alinement of the spinous processes, and if so in what direction.

Then, as said before, the exercises are begun. All of these are simple, so much so that youngsters of 7 or 8 grasp them readily. No exercise apparatus is used, and all of the exercises done at the clinic are repeated twice or three times a day at home. In the beginning the exercises are of the mobilizing type. As their name implies, they mobilize the unused and tightened muscles and ligaments of the trunk and, of course, at the same time strengthen them. Their very important function is to educate the patient to an ability to localize his control over his respiratory muscles, thereby cultivating a force powerful in its single expression but manifestly of paramount value because of its involuntary continuous repetition twenty odd thousand times a day. It is on this force carefully nurtured beforehand that we rely for correction of the patient's symmetry, once the plaster jackets have rearranged the parts of the thorax more evenly about his center of gravity. Red cheeks and bright eyes appear on patients and they become enthusiastic and active, while before they had been pale, dull and listless. After we are satisfied that the patient has learned to bring his potential respiratory force under his localized control and in fact does it habitually almost subconsciously to correct the rib deformity, then and only then, usually after from one to six months' attendance at the clinic, do we apply a corrective jacket.

This plaster jacket is applied to the patient while he is supine on a hammock in the Abbott [2] frame in the following position: The shoulder girdle is rotated toward the side of the convexity of the spinal curve while the pelvic girdle is rotated simultaneously in the opposite direction. In other words, if the patient has a right dorsal left lumbar curve, his shoulders are rotated to the right and his pelvis to the left. This, it seems to me, is the natural thing to do in order to straighten a twisted rod; i. e., untwist both ends in opposite directions. Especially does this rotation treatment seem warranted as the forces necessarily applied thereby are not as severe as might be the case by some other method. Then again, as Lovett [3] has proved, in the dorsal region, the seat of the deformity we are combating, rotation is the freest of all movements.

Now then, by the rotation of the two girdles in opposite directions we are employing two very powerful levers of derotation. First, as Feiss [4] and Forbes [5] have shown, by rotating the shoulders the peripheral stress of the parietes enveloping the concave side of the thorax acts as a force on the ribs of that side—as shown at *a* in Figure 7—to effect, through the spring tension of the ribs, a turning of the thorax. The tension is increased on the concave side, therefore, causing a recession there as indicated at *b*; and by pushing on the transverse processes, there should result a correction of the vertebral rotation. This should be followed on the convex side, where the spring tension is lessened by a progression forward. With this change in shape should come a change, as it were, in the center of gravity, a shift in the thorax to result in a better balance.

Simultaneously with and in addition to this correction we see further, on the concave side, a separation of the individual ribs and a downward inclination to them; while, on the other side, the ribs become more crowded together. These, then, are the effects of the first leverage considered, i. e., the indirect leverage—a derotation by the ribs.

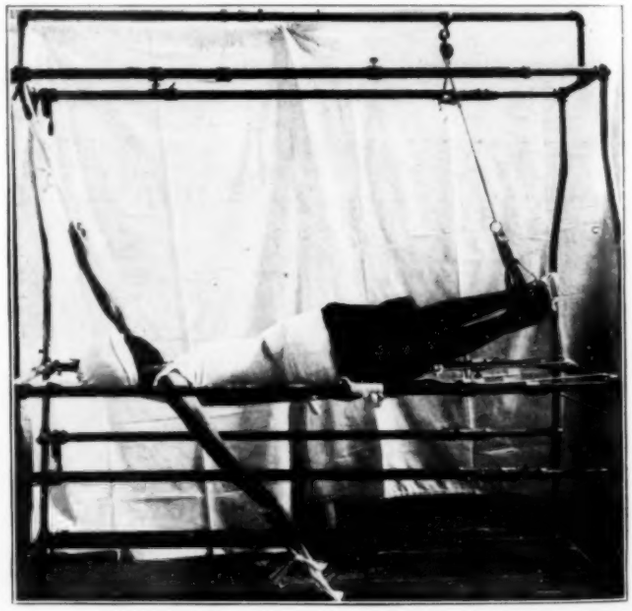


Fig. 5.—Patient with a right dorsal-left lumbar scoliosis in position ready for the application of a plaster jacket.

Secondly, by rotating the pelvis there should be effected a direct derotation of the dorsal vertebrae by the lumbar vertebrae. Lovett,[3] in 1905, concluded that there was little rotation possible in the lumbar spine normally, and that it was "extremely limited." In 1914,

2. Abbott, E. G.: Am. J. Orthop. Surg. **15**: 370, 396 (May) 1917.

3. Lovett: The Mechanism of the Normal Spine and Its Relation to Scoliosis, Boston M. & S. J. **153**: 349 (Sept. 28) 1905.

4. Feiss: The Mechanics of Lateral Curvature, Am. J. Orthop. Surg. **4**: 37 (July) 1906.

5. Forbes: Rotation Treatment of Scoliosis, New York M. J. **96**: 1 (July 6) 1912.

Calve [6] remarked on the absence of rotation in the lumbar spine, and concluded that the lumbar column forms with the pelvis an actual rigid block to rotation. Nearly all the rotation of the pelvis, therefore, should be transmitted through the lumbar spine to the dorsal vertebrae, and there should be little danger of aggravating a lumbar deformation. At any rate, it seems safe to risk the possibility of any such deformation, slight as it necessarily must be, in order thereby to correct the great total deformity. Therefore, our second, powerful, direct derotator: the pelvic leverage.

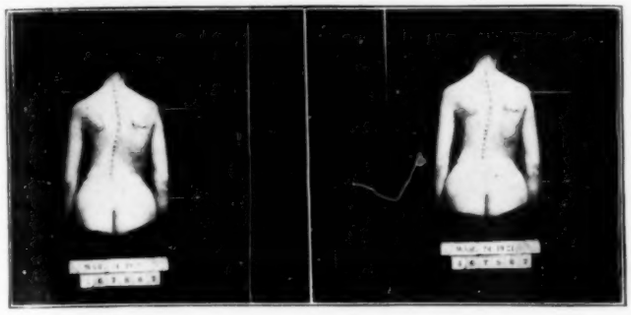


Fig. 6.—Photographic record of a patient in the Osgood-Bucholz frame; it is intended that the next report of cases shall be based on records of this sort.

Casts are applied then with the patient in position with the two levers of derotation, just described, in effect. Windows are cut over the posterior concave half of the thorax, and in front over the ribs on the convex half. The respiratory movements previously cultivated tend to increase the corrective strain applied to the deformity, and a bulging of the thorax through these windows soon attests this fact. The effectiveness of this fenestration, aside from its value for aeration purposes, is enhanced by the application of direct pressure on the rib wall of the convex side posterior to the angles of the ribs. This force—the third one employed, for direct derotation by means of the ribs—tends to rotate the thorax still more rapidly in the direction that rotation of the shoulders effected, and more specifically lessens the impressive evidence of the rotation, namely, the posterior convexity of the ribs—the hump. With the application of this moderate amount of pressure, by means of felt pads inserted once a week between the angle of the ribs on the convex side and the plaster cast, the thorax at the windows bulges more and more with each respiration. This respiratory force, as noted before, is involuntarily in action about twenty odd thousand times a day; but besides this the patient is instructed to carry on with his intensive breathing exercises, now in the cast, three times a day for twenty minute periods. Naturally this force is thus increased in power, and serves as the fourth force for derotation.

The casts are maintained until they are no longer efficacious, and are then changed, usually on an average of about once a month. The repetition of casts goes on while there is any improvement shown. Once this ceases, the patient is transferred to a fenestrated jacket similar to the one he has been wearing, but removable. That is to say, the jacket is made snugly fitting in the rotated position, and then is split along the back and front. Leather hinges are applied to the posterior halves, and leather straps and buckles in front. This furnishes the patient with a very cheap piece of retentive apparatus. Then the patient returns to his exercises for a few months, but after that the permanent jackets are again resumed for still further correction. Once the maximum amount of correction from the rotation jackets has been obtianed—and we have seen an increase in height of about 6½ inches (15 centimeters) within five months of such jacket treatment—the patient is transferred to a jacket applied in the same frame but with the patient lying supine on the hammock, the trunk flexed at the hips, and the spine somewhat in flexion—in other words, almost a straight jacket. The fenestration is similar to that in the rotation jacket, and the insertion of the pads corresponds likewise. Thus the remaining posterior convexity of the ribs—the hump—is attacked still further. These casts also are worn for about a month each and padded weekly, till finally, when the maximum amount of correction has been attained, the patient is measured for a brace holding the pelvis with butterfly grips and supporting the thorax by means of uprights with attached swathes. While this is being made, he is given a bivalved hinged plaster jacket, as described before, except that there is no rotatory tendency to the cast. Then he resumes his exercises daily out of his cast, this time though to strengthen the supportive stays to the spine. With a continuous repetition of his muscle strengthening exercises these muscles become competent, with the help of his brace, to maintain the patient in his new, and better balanced, symmetrical position. The brace is worn, coincident with the exercises, over a period of years while Wolff's law of bone transformation may take effect. Then by the time the patient is from 21 to 25 years of age he should have a stable spine supported by strong muscles. Henceforth, without any help, he should remain through the rest of his life a symmetrical, well balanced, and, to the casual observer, a normal looking person.

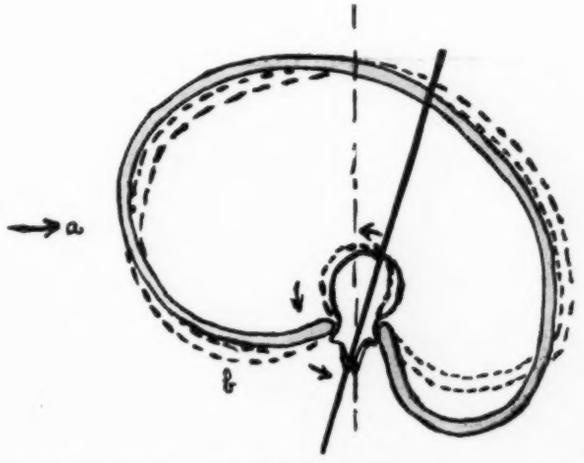



Fig. 7.—Diagram indicating the effect of rotating the shoulder girdle to the patient's right. The enveloping parietes exert a force on the ribs—at *a*—to effect a turning of the thorax, etc.

483 Beacon Street.

6. Calve: Am. J. Orthop. Surg. **12**: 23, 1914.

**High Maternal Death Rates in Childbirth.**—By intensive analysis of the data available in municipal and state health departments, it would be possible to determine with considerable accuracy to what degree some of the causes of high stillbirth rates and most of the causes of high maternal death rates in childbearing are due to poor obstetrical service on the part of physicians and midwives, the extent to which particular individuals are responsible for these fatalities, and the measures necessary to reduce them.—W. T. Howard, Jr., *Am. J. Hygiene* **1**:233 (March) 1921.

# TREATMENT OF FRACTURES OF THE METACARPALS AND PHALANGES OF THE FINGERS

RALPH H. WHEELER, M.D.
CHICAGO

Fractures of the metacarpals and phalanges of the fingers have not received attention in proportion to their importance. The hand is not only a most important member from the industrial point of view, but it is likewise exposed to danger far more than other parts of the body. All writers are agreed that the diagnosis of these injuries is easy. In too many instances, however, surgeons submit to the influence of the almost continual cry from the claim or loss departments to "keep down expenses," and omit the taking of roentgenograms in the so-called minor injuries. Too much emphasis cannot be placed on the importance of knowing the exact condition at the earliest possible moment in order to handle cases of this kind properly.

Fig. 1.—Appearance of the hand at the time it came under treatment; method of attaching gauze loops, and the application of extension.

It is not my purpose to discuss individual fractures, but simply to offer a suggestion as to treatment, particularly where extension is indicated. All writers agree that extension is indicated in fractures with overriding. This, of course, does not apply to the distal phalanges because displacement of fragments here is not due to muscular action, and hence extension is not necessary. Fractures of the middle phalanges of the fingers are not often overriding; but when this condition does exist, extension is indicated.

The method presented will be found most applicable to fractures of the proximal phalanges and metacarpals, but can be successfully used in fractures of the middle phalanges. The secret of extension of the fingers lies in something that can be attached to the skin which will not slip and at the same time not restrict circulation to any material extent. This can be accomplished with a strip of gauze bandage and a glue made of celluloid and acetone. To make this glue, enough celluloid (I use scraps obtained from automobile top manufacturers) is dissolved in acetone to make a solution of the consistency of mucilage. It is well to test the solution by gluing a piece of gauze to an assistant's hand before applying it to the patient. The most satisfactory method is to glue a loop of gauze to each finger on which extension is desired, and while the glue is drying put a plaster-of-Paris cast on the forearm, extending from the fold of the wrist to within about 2 inches (5 cm.) of the fold of the elbow. In this cast a wire loop, which is so adjusted as to project 2 or 3 inches (from 5 to 7.5 cm.) beyond the finger or fingers to be

Fig. 2.—Cast with wire loop, and further illustration of the method.

Fig. 3.—Position of the fragments at the time the patient came under observation.

Fig. 4.—Position of the fragments after being in extension for twenty-four hours.

Fig. 5.—Position in which the fragments were allowed to unite.

extended, is incorporated. In this method counter-extension is made against the bulge of the muscles of the forearm; hence, in putting on the cast, but little padding should be used, otherwise when extension is applied it will crowd up. After the plaster hardens, the wire loop is adjusted to the line in which extension is desired and then a piece of rubber tubing is passed through the gauze loop attached to the finger and over

Fig. 6.—Appearance of the bones one year after the injury.

the wire loop, and made fast with as much strain as is desired. Experience has taught that care must be observed not to put too much strain on, because blistering of the skin will follow and the gauze loop will loosen. In the few instances in which this has occurred, another loop has been applied, using the palmar and dorsal surfaces when the first loop was attached to the sides and vice versa, and extension continued without interruption. The blistered surface will heal very kindly.

The method is particularly adapted to compound fractures because it allows free access to wounds. It is likewise convenient if it becomes necessary to operate and open down to the seat of fracture and adjust the fragments. As the celluloid acetone solution is impervious to water, the parts can be prepared for open operative work without removing the extension apparatus; as soon as the operation is complete the finger can be fixed in extension without any manipulation and held there, and hence it is seldom necessary to do more than adjust fragments. A string can be substituted for the rubber tube during the operation, and an assistant can make traction when required. The rubber tube should immediately be restored at the close of the operative procedure.

### REPORT OF CASE

A man, aged 40, was riding in a coupé which skidded into the curb, and turned on its side. As the car went over, he put his left hand out of the window on to the concrete sidewalk, and the top of the window frame came down on it, severely lacerating and contusing the soft tissues and fracturing the metacarpals of all of the fingers. I saw the patient twelve days after the injury, at which time the fractures were overriding, the wounds were infected, and the hand was so intensely swollen that it measured 3 inches (7.5 cm.) from dorsum to palm. The functional result was practically complete recovery, there being only slight loss of flexion in the distal joint of the third finger. At the end of one year, he resumed playing the violin, using the injured hand to finger the strings.

108 North State Street.

## *Clinical Notes, Suggestions, and New Instruments*

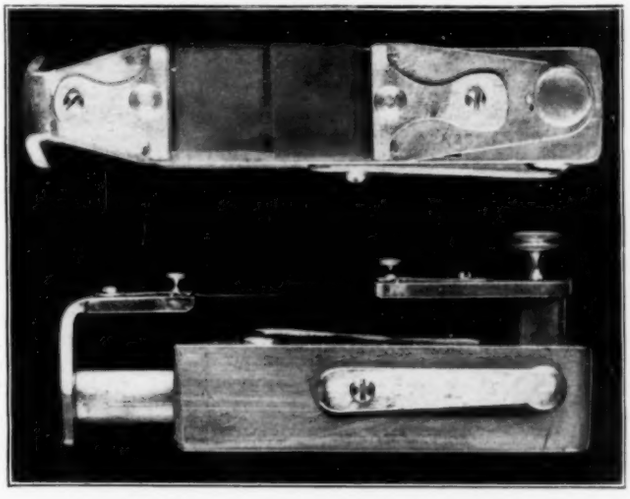
### COVER SLIP BLOOD FILM APPARATUS*

H. REXFORD HOOBLER, M.D., SAN FRANCISCO

Every one working with blood has realized the difficulty of making satisfactory smears. Slide smears, when made by thin paper or another slide, do not give an even distribution of the leukocytes. Cover slip preparations have always been considered the best, and these are satisfactory only when made by the hands of one with much experience.

During the last year I have been working on dried blood smears where uniformity of distribution, thinness of film and rapidity in making were essential. I tried both slide and cover slip methods but with poor results. I realized the necessity of having a device for this purpose which only mechanical precision can accomplish, and, with suggestions from Dr. V. E. Emel, evolved the apparatus here described.

The cover slip blood film apparatus consists of a rectangular brass block into which two pistons fit at right angles in the same plane. Each piston has a stage attached on which a cover slip is held in place by a flat spring. The cover slips are put in place. A drop of blood is put on the cover slip on the horizontal piston by touching the finger with the cover slip in place. The apparatus is held in the left hand between the thumb and thenar eminence and the last three fingers. With the index finger, the horizontal piston is pushed in against a coiled spring until it is under the cover slip on the vertical piston and is held there. With the right hand, the vertical piston is screwed down against a coiled spring until by capillary attraction the drop spreads uniformly over the two cover slips. As soon as spread, the



Top and side views of cover slip blood film apparatus.

horizontal piston is released and the two cover slips slide apart.

This gives a uniform distribution of the blood. The white cells remain in place and are not dragged to the edge. The film can be made as thin or as thick as desired. A loop of standard size can be used to transfer the blood to the cover slip; but if the finger is pierced and the size of the drop selected, this is not necessary. It can be loaded and carried in the pocket when leaving the office or laboratory. The apparatus is made heavy so as to give it firmness.

* From the Department of Pediatrics, University of California Medical School.

## CHRONIC SPLENOMEGALY WITH ATTACKS OF GASTRORRHAGIA DUE TO RECURRENT THROMBOSIS OF THE SPLENIC VEIN

ANDERS FRICK, M.D., CHICAGO
Chief of Department of Internal Medicine, Augustana Hospital

I. H., a man, aged 61, had been well up to his forty-third year, when, probably after a cold, a severe pain in the epigastrium and the left hypochondrium developed. He remained in bed three weeks, and the pain gradually subsided. No definite diagnosis was made. He was thereafter quite well until his fiftieth year, when he suddenly began vomiting large amounts of blood. At that time the spleen was found to be enlarged and a tentative diagnosis of Laënnec's cirrhosis was made. When 59 years old, he had what seems to have been a small gastric hemorrhage. He was suddenly seized with a slight pain in the epigastrium and became very pale and weak, but recovered rapidly. When 60 years old, he had a similar but somewhat more severe attack, at which I happened to be present. He suddenly complained of epigastric pain and extreme weakness. He turned very pale. The skin was clammy and the pulse very small and rapid. He did not vomit. The next day the feces, which were dark but not tar-colored, gave a very strong reaction for occult blood. Only after two weeks had elapsed was the Weber test negative.

Having recovered sufficiently, he was thoroughly examined. The stomach contents were normal; the Wassermann reaction was negative; a roentgenogram of the stomach was negative except that it showed the organ displaced by the enlarged spleen; analysis of the blood revealed 5,536,000 red cells, 7,600 white cells, and 85 per cent. hemoglobin; the spleen reached about a hand's breadth below the costal arch.

Specimen of splenic vein with thrombi.

A year and a half later, early in December, 1920, he again complained rather suddenly of epigastric pain and great weakness. The feces contained occult blood. The patient was kept in bed, starved a few days, and was gradually allowed to take very light food. After two weeks, he was allowed to be out of bed, and was feeling well, until December 31, at noon, when he suddenly became extremely weak, and shortly afterward began to vomit blood profusely. Within a few hours, he was taken to the Augustana Hospital. When admitted, he had already vomited two or three basinfuls of blood and was extremely weak. The complexion was ashy gray, and the pulse barely palpable. A transfusion of 1,000 c.c. (33.8 fluidounces) of whole blood was made and he rallied immediately, the color returned to his cheeks, and he declared that he felt perfectly well. About two hours later, however, he again began to vomit blood and he died, exsanguinated, at 2 o'clock the following morning.

At necropsy, which was performed by Dr. John Nuzum, we found: (1) an enlarged and not adherent spleen weighing about 500 gm. (1 pound and 1½ ounces); (2) one old and calcified thrombus in the splenic vein and, immediately to the left of it, another thrombus of recent date; (3) the distal part of the splenic vein as well as the venae breves and the gastric veins considerably dilated; (4) a few enlarged lymph nodes along the splenic vein, and (5) petechial spots in the gastric mucosa.

The spleen was of slightly increased consistency, evidently owing to passive congestion and fibrosis. The calcified thrombus was situated in the splenic vein immediately to the left of its junction with the inferior mesenteric vein and formed a ridge about three-quarters inch (19 mm.) long, which almost entirely occluded the lumen of the vessel, but did not interfere with the outflow from the inferior mesenteric vein. The more recent thrombus, situated close to and distally from the old one, was the size of the kernel of a small hazelnut, filled the lumen completely, and was attached with a broad base to the vessel wall. It was slightly reddish. There were no other pathologic changes in the splenic vein. The portal vein was normal and patent, the liver was normal, and there was no trace of a gastric or duodenal ulcer. Prof. Ludvig Hektoen kindly interpreted the pathologic specimen.

### COMMENT

We had made an antemortem diagnosis of portal thrombosis of eighteen years' standing, believing that the epigastric pain experienced when the patient was 43 years old was due to a thrombus formation in the portal vein, as the pain came on rather suddenly and lasted, as is usual in cases of thrombophlebitis, about three weeks, or until the thrombus became organized. The splenomegaly, which was detected seven years later, was considered due to passive congestion subsequent to a thrombotic obstruction of the portal vein; and the attacks of gastrorrhagia were ascribed to rupture of gastric veins, which were supposed to be congested and dilated because of the same obstruction in the portal vein.

In view of the postmortem findings, it is evident that our diagnosis was not quite correct in regard to the exact location of the thrombus. The splenomegaly and, particularly, the gastrorrhagia were due to an obstruction, not in the portal but in the splenic vein. It was because of the splenic thrombosis that a collateral circulation was established in the stomach; the normal current in the venae breves was reversed; and an increased amount of venous blood was thrown from the spleen through these vessels into the gastric veins, which became engorged and dilated, and finally ruptured. Consequently, the source of the extravasated and vomited blood was the spleen, and if a splenectomy had been made at an opportune time, the fatal gastrorrhagia could have been prevented. There would even have been a fair chance that a splenectomy could have saved the patient after the gastrorrhagia had set in, if it had been performed immediately after the transfusion. At that time the patient was in excellent condition, and it was only two hours later that he again began to vomit blood. Even if, in the meantime, there was some bleeding going on in the stomach, it would have ceased as soon as the splenic vessels had been clamped. One feels much more certain that a splenectomy would have been beneficial when one considers that the outflow from the gastric veins into the portal vein was free; and, therefore, all causes for increased pressure within these vessels would have been removed by the shutting off of the blood flowing from the spleen to the stomach.

The question then presents itself: Could a correct diagnosis have been made? Yes, it undoubtedly would have been possible if more attention had been paid to the absence of circulatory disturbances in those abdominal organs which are drained of their venous blood by branches of the portal vein other than the splenic vein. A study of a diagram of the portal tree shows that if a thrombus is located, as in the case reported, in the splenic vein to the left of its junction with the inferior mesenteric vein, it will not interfere with the circulation in any of the portal branches but the splenic

vein. If the thrombus had extended farther toward the right, the inferior mesenteric vein would have been occluded, and a formation of hemorrhoids would have resulted. Had the thrombus extended still farther toward the right and into the portal vein, it would have interfered with the circulation in the inferior mesenteric, the duodenopancreatic, and the paraumbilical veins. The subsequent passive congestion in the territory of these veins would have caused chronic diarrrea, ascites, an enlargement of the superficial abdominal or lower thoracic veins, and possibly hemorrhages from the bowels.

### CONCLUSION

In the presence of a case of chronic splenomegaly with attacks of recurrent gastrorrhagia, and in the absence of other symptomatology, particularly hemorrhoids, chronic diarrhea, ascites, caput medusae, and intestinal hemorrhage, one would be justified in making a diagnosis of thrombosis of the distal portion of the splenic vein, and splenectomy would be clearly indicated. It should be performed preferably at an opportune time, but it is indicated also as an emergency measure at the time of an attack of gastrorrhagia, if it can be done immediately after a blood transfusion.

3219 North Clark Street.

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## A NEEDLE FOR INDUCING PNEUMOTHORAX

H. R. MILLER, M.D., NEW YORK
Adjunct Attending Physician, Montefiore Hospital

Those who have employed the Floyd-Robinson needle for the induction of artificial pneumothorax realize that the instrument is heavy, somewhat clumsy, and requires manipulation of two pet-cocks, as well as prompt stoppage by the finger at the point of exit of the trocar after its complete withdrawal.

The needle proposed is light, has no pet-cocks, and is built very much like the Quincke lumbar puncture needle. With

Fig. 1.—Instrument assembled before puncture.

proper connections for manometric reading and for air or nitrogen pressure, the instrument is forced through the chest wall with the trocar in place (Fig. 1); the cap is now turned slightly to free the trocar, which is then pulled up as far as it will come (it cannot be removed entirely), and secured firmly by turning the cap back to its original position. This produces an air-tight closure around the trocar and automatically permits an open channel for the inflow of air or gas.

The functioning principle of this instrument lies in the use of the conical wedge, slit longitudinally almost to its very base (Fig. 2), and capable of pressing snugly about the trocar

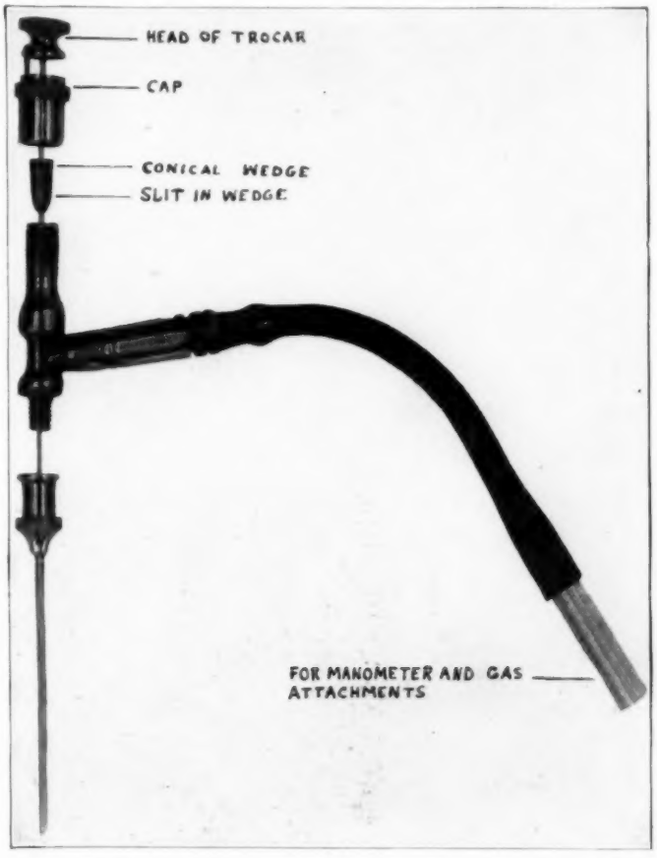


Fig. 2.—Instrument opened to show important parts.

when the overlying cap is screwed down so as to compress the two lower opposing portions of the wedge. If the cap is unscrewed and thus unloosened, the trocar will slide up and down readily.

The instrument may be used for aspiration as well as for the introduction of air or gas.

266 West End Avenue.

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## TENDON SUBSTITUTION TO RESTORE FUNCTION OF THE EXTENSOR MUSCLES OF THE FINGERS AND THUMB

WILLIAM JACKSON MERRILL, M.D., PHILADELPHIA

Corporal Z. was wounded in the left forearm, on the dorsal surface, at about the junction of the distal and middle thirds, Sept. 26, 1918. A débridement was done soon after the injury. Suppuration followed of not a very serious nature. There was a scar about 4 inches (10 cm.) long and one-half inch (12.7 mm.) wide running upward from the bend of the wrist, firmly adherent to the deeper structures. The power to extend the fingers and thumb was entirely lost. Figure 1 *A* shows the position of the hand and fingers before operation—the fingers flexed and the tip of the thumb in the palm of the hand. The metacarpal bone of the thumb could be slightly abducted, but the phalanges could not be extended. The wrist could be feebly dorsally flexed, but veered to the radial side. The flexor muscles were normal, but were practically useless on account of the loss of power of their antagonists. There was no evidence of any latent inflammatory process. The tissues of the dorsum of the hand and wrist, with the exception of the cicatrices, were quite normal in texture. The

patient before his induction into the service was employed in a factory where he operated a machine in the manufacture of small parts of machinery, which labor required deft use of the hands. This condition entirely unfitted him for his vocation.

The problem at hand was to restore muscle balance to a degree that the fingers and thumb could be extended sufficiently to open the hand and make possible the grasp by the flexor groups. It was evident that no muscle tissue was left on the dorsum of the forearm, except the extensor carpi radialis longior, extensor carpi radialis brevior and ossis metacarpi pollicis, and the condition of these could not be accurately determined prior to the operation. No definite plan could be predetermined, but my purpose was to combine the tendons in groups according as the muscle tissue found would permit, or to attach the distal stumps of the tendons to a single combined tendon if no better scheme was possible.

Operation was performed six months after the wound was healed. An incision 10 inches (25 cm.) long was made on the dorsum of the forearm and hand, extending along the edge of the scar, and the scar and the underlying cicatricial tissue were resected, exposing the interosseous membrane, which was thickened, dense and dark (Fig. 2 *A*). The stumps of the extensor tendons (extensores, minimi digiti, indices, communis and longus and brevis pollicis) were irregularly severed as shown in Figure 2 *A*. The tendons of the extensores carpi radialis longior and brevior and their sheaths were intact, as was also their muscles. The best plan seemed to be to attach these tendons to the extensor tendon stumps of the fingers in the following manner: The extensor minimi digiti and the fourth division of the communis were attached to the third division of the communis, and the latter was attached to the second division of the communis. The stump of the second division of the communis was attached to two thirds of the extensor carpi radialis brevior, one third of the extensor carpi radialis brevior was left attached to the carpal bones to flex the wrist dorsally (Fig. 2 *B*, *d*, *e*, *f*). When the last mentioned junction was made, the extensor carpi radialis brevior was pulled well down to give considerable tension on the extensor tendons of the fingers. The tendon of the extensor carpi radialis longior was detached entirely and joined to the stumps of the extensor indicis and the first division of the communis tendons (Fig. 2 *B*, *g*).

The stumps of the extensores longus and brevis pollicis tendons were attached to the tendon extensor ossis metacarpi pollicis (Fig. 2 *B*, *h*, *i*). Before this attachment was made,

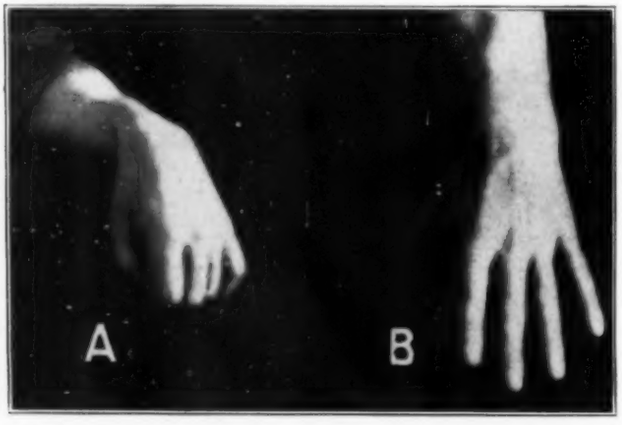


Fig. 1.—*A*, position of hand before operation; *B*, power of extension of fingers and thumb after operation.

the tendon extensor ossis metacarpi pollicis was pulled down forcibly to give considerable tension on the two tendon stumps. Their attachment and the tension on the stumps being unequal. the pull of the extensor ossis metacarpi pollicis would first be exerted on the distal and then on the middle phalanges before the metacarpal bone was to any great extent abducted.

The exposed tendons were generously covered with thin pads of fat taken from the thigh. The skin was closed by a running chain suture. Two small wick drains were used, which were removed after twenty-four hours. The hand was dressed on a palmar splint, which fully flexed dorsally the wrist, and completely extended the fingers and extended and abducted the thumb. The splint was attached to an internal angular splint which held the hand in midposition and flexed the elbow at a right angle. The entire dressing was stabilized by a thin layer of plaster, and the arm was fixed to the chest.

The wound healed by first intention. The hand and arm were held in this position for about four weeks, when the dressing was removed and a simpler splint used to hold the hand in its cock-up position for three weeks. At the end of about seven weeks the dressings were removed and movements commenced. The fingers could readily be extended and the thumb extended and abducted as shown in Figure 1 *B*, in a short time after the dressings were removed. After a few months of training the patient could extend the fingers and thumb (as shown in Figure 1 *B*) quite as readily as the fingers and thumb of his normal right hand. The index finger can be extended independently of the three outer fingers, and they in turn can be extended independently of the index finger. The patient stated that the hand gave him practically no disability. He returned to his vocation, which he followed with no inconvenience. Much of the success of this operation is due to the use of the thin pads of fat which prevented adhesions.

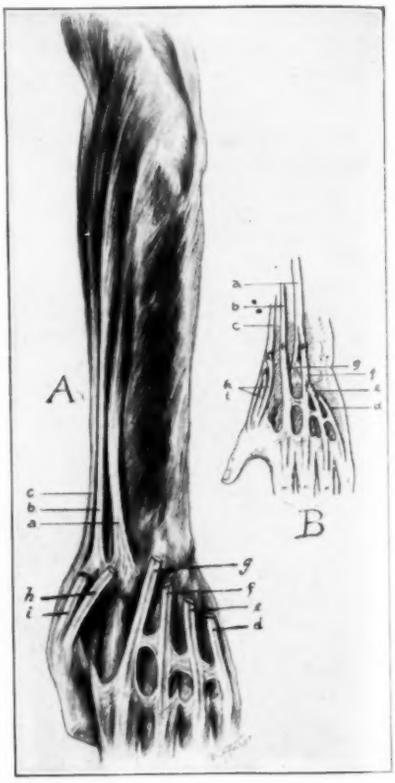


Fig. 2.—*A*, condition of muscles before operation; *B*, scheme by which the tendons were united.

2017 Spruce Street.

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## A CASE OF AN ABNORMAL GROWTH OF THE UPPER EXTREMITY

W. H. SLAUGHTER, B.S., M.D., ELLIS ISLAND, N. Y.
Surgeon, United States Public Health Service

I. K. (1745, U. S. Public Health Service Hospital No. 43, Ellis Island, N. Y.), a boy, white, aged 11, an alien, was admitted to the hospital, Aug. 12, 1921, with an abnormally developed upper extremity, including the shoulder girdle, that it might be determined whether or not the condition was one of filariasis, classified under the immigration laws of the United States as a dangerous, contagious disease, and an excludable condition.

The history of the case was obtained from the father through an interpreter. The patient, a Roumanian Hebrew, was born in Hungary, now Czechoslovakia. The birth was normal, the mother being delivered by a midwife. The left upper extremity at the time of birth was larger than the right, and the first and second fingers of the hand were webbed. At the age of 6 months, the child was taken to a hospital at Budapest, and operated on for his webbed fingers. Following operation, there was severe hemorrhage, to control which tourniquets were applied to the arm. It was reported that a tourniquet applied "high up on the arm" was left on for several days. Immediately after, the arm began

to increase in size. The operation for webbed fingers was not successful.

When the patient was 1½ years of age, the index and middle fingers were amputated. Two weeks later another operation was performed in an effort to correct the abnormal growth, a long incision being made from the shoulder to the elbow. Because of hemorrhage, the operation had to be abandoned.

The arm continued to develop in size until the patient was 9 years of age, at which time it reached its present development. It has not increased in size since. From the history

MEASUREMENTS OF UPPER EXTREMITIES

| | Right Upper Extremity | | Left Upper Extremity | |
|---|---|---|---|---|
| | Cm. | Inches | Cm. | Inches |
| Circumference at wrist | 13 | 5 3/16 | 17 | 6¾ |
| Circumference at forearm midway between wrist and elbow | 17 | 6¾ | 23 | 9 1/16 |
| Circumference at elbow, arm extended | 17 | 6¾ | 26 | 10¼ |
| Circumference at insert of deltoid | 16 | 6⅜ | 35 | 13¾ |
| Circumference at shoulder (tape being carried from axillary folds over the acromion process of each shoulder) | 24 | 9½ | 43 | 16⅞ |
| Length from anterior axillary fold to tip of styloid process of radius | 34 | 13⅜ | 37 | 14½ |
| Length from anterior axillary fold to terminal phalanx of thumb | 44 | 17⅜ | 47 | 18½ |
| Length from the inferior angle of scapula over shoulder to terminal Phalanx of thumb, arm extended | 62 | 24⅜ | 66 | 26 |

obtained, it appears that the patient had always been healthy. The usual diseases of childhood were denied. The family history was negative.

The patient had no complaint. (It is the custom for all aliens to deny ill health when they are admitted to the hospital at Ellis Island for observation, because they fear that any history which may be incriminating may be used in some

Fig. 1.—Front view of patient with abnormal growth of left arm.

way to bar them from the country.) He denied that he had pain or numbness in the affected limb. He further asserted that he did not feel any extra weight of the enlarged limb. However, as stated, he was sent to the hospital for "observation," in order to determine whether or not he had filariasis.

The patient was well nourished and well developed for a child of his age. He appeared unusually bright mentally. He showed no abnormalities other than an enlargement of the left upper extremity. A scar extended from the spine of the left scapula over the lateral aspect of the humerus to within about 5 cm. (2 inches) of the elbow of the affected limb. The length of the scar was 34 cm. (13⅜ inches). The index and middle fingers of the left hand were missing, having been amputated at the metacarpophalangeal joints. Motion of all joints of the involved limb was normal. The patient apparently had as much strength in his left arm as in his right. There were no areas of abnormal sensation. On palpation, the affected member felt soft and rather flabby. On admission, the temperature was 37.2 C. (98.96 F.), pulse 90, respiration 20. The measurements of the upper extremities are given in the accompanying table.

Fig. 2.—Side view of patient.

The lymph glands were slightly palpable in the groins and axillae; otherwise the physical examination was negative.

Roentgen-ray examination and urinalysis were negative.

The blood was examined on three different occasions, at night, for microfilariae. All examinations were negative.

COMMENT

The case is clearly not one of filariasis. It is looked on as an abnormality, which, if any credence can be attached to the history, existed from birth. It is reported, not so much to speculate as to the cause, but rather to report an abnormal and unusual occurrence.

## A BONE PLATE FOR USE IN FRACTURES CLOSE TO JOINTS OR TO EPIPHYSES

WILLIAM H. BYFORD, M.D., BLUE ISLAND, ILL.
Assistant Surgeon, St. Luke's Hospital, Chicago

Certain fractures, particularly those in which the extremities of the bones are involved, are at times impossible to retain in alinement. In such cases, when an open operation is resorted to, the usual methods of fixation have certain objections. To fix the fragments, whether by wire, catgut or tendon, requires a large exposure and much handling of tissue. A Lane plate requires at least two screws in each fragment to obtain security, and one of these may closely approach the joint or in children the epiphysis.

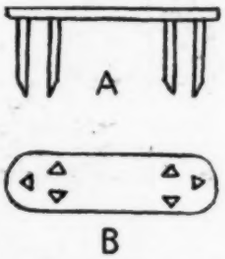



Fig. 1. — Bone plate for use in fractures close to joints or epiphyses: *A*, side view; *B*, bottom view.

To overcome these objections, the plate illustrated in Figure 1 was made. It is of noncorrosive material, 1 inch (2.5 cm.) long, one-quarter inch (6.4 mm.) wide and one thirty-second inch (0.8 mm.) thick. In each end are three fixed pins, three-eighths inch (9.5 mm.) long and one thirty-second inch (0.8 mm.) thick, with cutting points. To apply, a small incision is made, the fracture reduced and the plate hammered on. Very little force need be used. No holes need be drilled, and there is no necessity of the hands touching the

wound. The plate holds firmly, and no more care in after-fixation is needed than when a Lane plate is used. To remove it, Kocher forceps are applied and the plate is withdrawn intact.

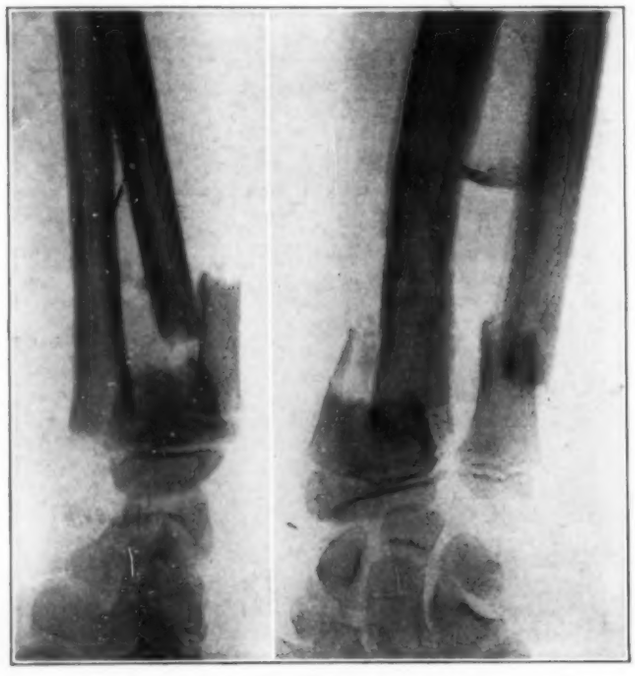


Fig. 2.—Double compound fracture of the forearm.

Figure 2 shows a double compound fracture of the forearm which could not be held in position. The wound became badly infected, and it was not deemed wise to operate until a month had passed. Figure 3 shows the same fracture a year later

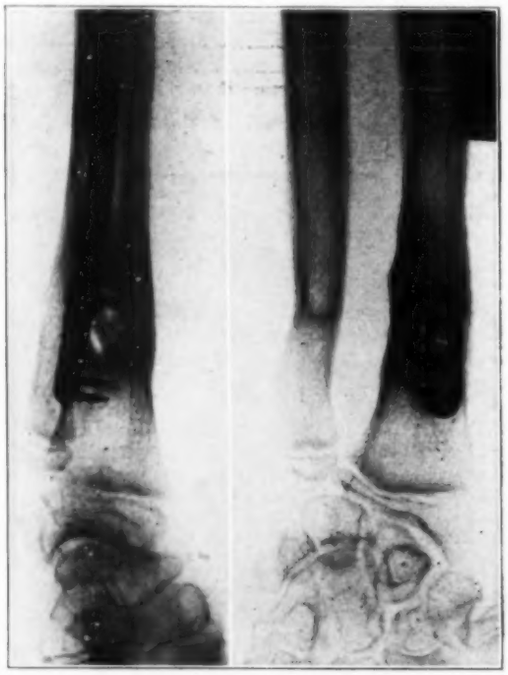


Fig. 3.—Fracture a year later with plate in place.

with the plate still in place. A small focus of infection is seen beneath it. Although the fracture of the radius was close to the epiphyseal line, the plate did not touch it. Twelve months after the first operation the wound was reopened, the plate removed and the osteomyelitis cleaned out. At present the wound is healed with a good functional result.

This plate has the following advantages over the ordinary methods used:

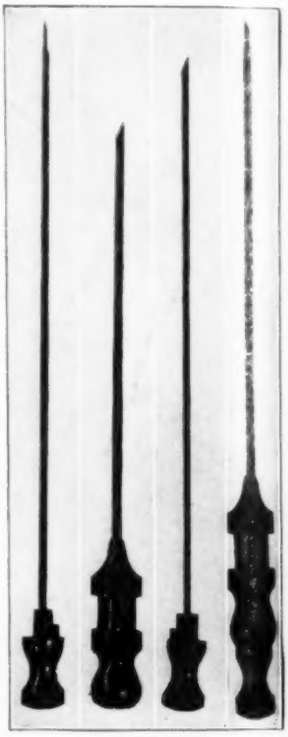
1. It may be applied through a small incision.
2. It is easy to apply and few instruments are necessary.
3. The surrounding tissues are but slightly traumatized.
4. It may be used on small bones.
5. It is easily removed.
6. Neighboring tissues are not endangered by slipping of the drill or perforation through the bone.

480 Maple Avenue.

## AN APPARATUS FOR WITHDRAWING SPINAL FLUID WITHOUT POSTPUNCTURE REACTION*

RANDAL HOYT, M.D., NEW YORK
Assistant Attending Physician, New York Skin and Cancer Hospital

Owing to the density of the tissues through which one must pass in making spinal puncture, a needle of sufficient size and rigidity to eliminate the danger of breakage must be employed. But the perforation of the dura which a needle of such size makes is virtually a tear, which, on account of the inelasticity of this membrane, remains open until the process of healing has taken place. MacRobert[1] asserts that sometimes the arachnoid is pulled through this opening as the needle is withdrawn, and that this causes a constant leakage of spinal fluid, which, by temporarily destroying the "hydraulic support" of the brain, is responsible for the headaches which so frequently follow lumbar puncture.



A B C D

*A*, inner needle with the fine pointed extension which pierces the dura; *B*, barrel of ordinary type of lumbar puncture needle, which serves in the capacity of the outer needle; *C*, its obturator. Note the comparative lengths of the obturator and the inner needle. *D*, inner needle in place within the outer needle. The fine pointed extremity of the inner needle, which pierces the dura, extends beyond the distal extremity of the outer needle. The length of this extension may be judged by comparison with *C*, the obturator.

Could a small opening be made in the dura, it is highly probable that these unfortunate sequelae would not occur; but, as already stated, on account of the liability to breakage, the use of a needle small enough to make an opening is precluded.

In the hope of combining the advantages of a small and a large needle, we have made use of an apparatus[2] which is nothing more nor less than a needle within a needle. The outer needle is the ordinary type of lumbar puncture needle, within which the inner needle accurately fits, and beyond which it extends as a fine point, for about a quarter of an inch (6 mm.). The proximal end of the outer needle is arranged as a fitting for a Luer syringe, whereas the proximal end of the inner needle is arranged for a record syringe.

To use this apparatus, lumbar puncture is made in the usual way, up to the point of piercing the dura. At this point, the obturator of the needle is removed, the inner needle—with a 10 c.c. record syringe attached—is introduced into its place, and thrust forward to its full extent, so as to pierce the dura, which it is enabled to do on account of its extra length. The spinal fluid is then withdrawn into the syringe, and if spinal treatment is

* Presented before the Clinical Society of the New York Skin and Cancer Hospital.

1. MacRobert, R. G.: The Cause of Lumbar Puncture Headache, J. A. M. A. **70**: 1350 (May 11) 1918.
2. Through the courtesy of Messrs. Bechton, Dickinson & Co., Rutherford, N. J.

to be given this is injected by means of a second syringe. To remove the apparatus, the inner needle is first withdrawn, and then the outer needle.

Three questions arise in connection with the use of this apparatus:

1. Can one determine when lumbar puncture has been carried up to the point of piercing the dura? In our experience, thus far, this has not been so difficult to determine as we had imagined it would be. There is a considerable variation in the resistance of tissues encountered during lumbar puncture, which ordinarily is not taken into consideration, as the sole object in view is to enter the subarachnoid space. By noting the degrees of resistance, however, one can, with a little practice, determine when the dural sac has been reached.

2. Are there any untoward contingencies liable to arise in the use of this apparatus? The pointed end of the inner needle would probably be broken if it were pressed with any degree of force against a bony structure. There is, however, no excuse for such an occurrence; the dura offers scarcely any resistance; therefore, if firm resistance to the inner needle is encountered, it may be inferred that the first step in the technic of puncture has been erroneously executed.

When the pointed end of the inner needle strikes a nerve root, it produces exquisite pain, and for this reason it should be inserted with the utmost gentleness.

The common error to arise is that of carrying the first step too far and piercing the dura with the outer needle. This amounts to nothing more than performing an ordinary lumbar puncture. It is to be borne in mind, however, that if treatment is to be given, the solution to be administered is in a record syringe, whereas the outer needle has a Luer fitting. For this reason we always have available an apparatus for giving treatment by gravity which has a Luer attachment.

3. Does the use of this apparatus prevent postpuncture reactions? Thus far, we do not feel that we have used the apparatus sufficiently to form any definite conclusions. There have as yet been no reactions in the cases in which we have performed puncture in this manner. It has been the first puncture of many of these patients and the serologic results have been negative—a type of case which is especially prone to reaction. In other cases, which habitually showed marked reactions, such have not occurred when puncture has been made by this method. This question will be the subject of a later report when more material is available.

1 West Sixty-Eighth Street.

## NEUROLOGIC PERCUSSION HAMMER

JOSHUA H. LEINER, M.D., NEW YORK

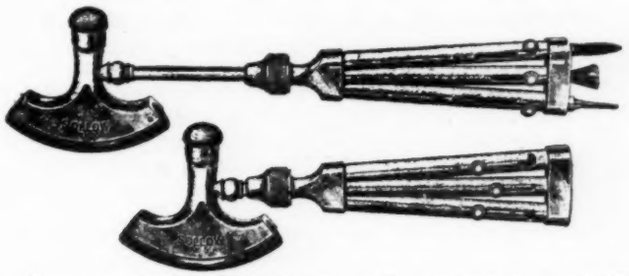
This combined neurologic percussion hammer has primarily the great advantage of being so compact that it can be carried in a vest pocket, being about half the length of the ordinary type. When it is pulled out it is the size of the ordinary percussion hammer.

The design conforms to that of a Roman battle ax. The convex side is used for the ordinary elicitation of tendon reflexes incidental to a neurologic examination. Metal is used here as weight for the proper balance, and the crescent shaped insert of dark red rubber, as a soft cushion. The top white rubber tip can be used for eliciting tendon response (especially in children), muscle chest percussion, etc. The rubber is a little harder here and is kept in place by a set-screw.

The opposite end of the instrument, or the handle, is made of three narrow tubes, within each of which lies an instrument commonly used by a neurologist incidental to a neurologic examination: for touch, a camel's hair brush; for pain, a steel needle; and for eliciting plantar response, and the like, a blunt orange wood stick. This orange stick is colored red and can be used for the examination of color sense. These instruments can be pushed out through openings at the end of the handle.

The steel needle and stick are set upon excellent steel springs, which arrangement allows them to snap back when not in use. When pushed out and in use they are held by small grooves on the sides. The center one, or camel's hair brush, is simply pushed out.

The shank connecting the head and handle of the instrument cannot be pulled out, nor can it be moved from side to side, as there is a grooved channel on the shank and pin that fits into it which permits no lateral displacement.



Above, neurologic percussion hammer with parts pulled out and different instruments protruding from the tubes of the handle; below, instrument closed and compact.

355 East One Hundred and Forty-Ninth Street.

## A MODIFICATION OF THE ODÉN BANDAGE FOR THE THORAX

EDWARD M. LIVINGSTON, M.D., NEW YORK

The Odén[1] bandage for the thorax (Fig. 1) is a bandage of marked superiority over the usual combination of bandages used to cover the shoulders and thorax. The originator employed it merely as a bandage of the thorax, the vertical turns acting as slings or supports to insure additional security.[2] The shoulder portion, however, is quite as useful as the thoracic; and as well as possessing the virtues originally claimed for it, the bandage proves ideal for retaining dressings to both shoulder and chest, in extensive burns, after removal of tumors, etc. In extending the application of the bandage to these cases, three main objections might be made: 1. The vertical turns do not fit well on the shoulders. 2. There is a tendency for the vertical turns to slip over the shoulder tip. 3. Dressings in the infraclavicular fossae and suprascapular regions tend to slip from beneath the loose vertical turns of the bandage.

To obviate these faults, the following modifications are suggested: (*a*) That the shoulder portion be made with oblique rather than vertical turns, as a dressmaker would fit a collar, that the normal obliquity of the shoulders may be met. (*b*) After completing the turns of the original bandage, one should continue with the first roller, the horizontal roller, to form a figure of eight over the affected shoulder and through the opposite axilla, this second modification preventing the bandage from slipping over the shoulder tip and likewise making pressure in the infraclavicular and suprascapular regions.

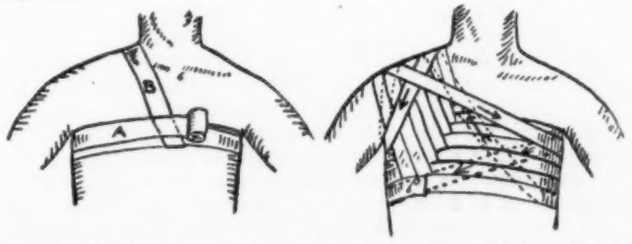



Fig. 1.—Odén bandage: at left, method of applying; at right, bandage covering desired area.

The accompanying sketches illustrate these modifications of the bandage which might, therefore, be thus applied:

1. The first roller is begun with its initial extremity over the junction of the manubrium with the body of the sternum.

1. Odén, C. L. A.: A Practical Bandage for the Thorax, J. A. M. A. **76**: 174 (Jan. 15) 1921.
2. Personal communication from the originator.

A horizontal turn or two around the thorax at this level fixes the bandage.

2. The second roller is started at the same point, but is directed upward to the base of the neck on the affected side; over the shoulder; and down the back obliquely to a point opposite the starting point. The bandage is here caught by the next horizontal turn of the first roller (like a recurrent bandage of the head).

3. The procedure is continued in this fashion, descending horizontal turns being made with the first roller, catching turns of the second roller, both anteriorly and posteriorly, as the shoulder is being covered. One should progress toward the tip of the shoulder with the roller number two, overlapping previous turns by one half.

4. When the desired portions of both the thorax and the shoulder are covered, the first roller is continued obliquely across the back; up over the affected shoulder; into the affected axilla; back up over the affected shoulder; across the chest into the unaffected axilla, and obliquely downward across the back, where the banadge is terminated by pinning; i. e., a figure of eight is superimposed upon the original bandage, the first roller being utilized for this purpose.

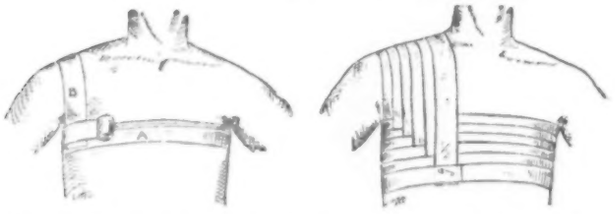


Fig. 2.—Modification of Odén bandage: at left, method of applying; at right, bandage covering desired area.

5. If it is desired also to cover the second shoulder, similar recurrent turns may be made with a third roller, or the second roller may be utilized, a V being formed both anteriorly and posteriorly.

172 Lexington Avenue.

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## AN AID IN THE DEMONSTRATION OF TUBERCLE BACILLI IN CEREBROSPINAL FLUIDS *

J. V. COOKE, M.D., ST. LOUIS

The difficulty in demonstrating tubercle bacilli in all cases of tuberculous meningitis is best appreciated by those who examine the spinal fluids. Those instances in which the organisms are not found are possibly due in part to the small number present, but many times the lack of a satisfactory preparation seems to be the essential fault. It is generally agreed that the thin fibrinous clot which forms in such fluids enmeshes the bacteria, and that stained preparations of this "film" offer the best chance of finding the organisms. The manipulation of these delicate elastic skeins of fibrin, and their removal from the fluid onto a glass slide for staining, are especially vexatious. The fibrin adheres to the needle and has a marked tendency to contract into a small, tough ball which cannot be teased apart. Only thin preparations are of value for staining, since thick ones cannot be sufficiently decolorized for satisfactory examination.

The technic here described has greatly facilitated the transfer of the fibrin clot to the slide with a minimum of handling and distortion, and has consequently rendered easier the demonstration of tubercle bacilli. The hope that others who have had difficulty with the fibrin films may likewise find the method useful is sufficient excuse for calling attention to what seems at first sight to be a rather trivial or insignificant manipulation.

The test tube containing the spinal fluid with the "film" is shaken gently to detach the fibrin from the sides or bottom of the tube, and the entire contents of the tube are poured on the surface of a clean glass plate. A convenient size for these is 3 by 6 to 8 inches (7.5 by 15 to 18 cm.), and such plates may be easily cut from window glass or from discarded roentgen-ray plates from which the emulsion has been removed. From 10 to 15 c.c. of liquid will not overrun the edges of such a plate if moderate care is used in pouring it out. The fibrin film is not distorted and floats in the liquid on the flat surface. The excess of spinal fluid may be drained off by a pipet or blotting paper, and while still moist the fibrin may, if necessary, be rearranged somewhat by a teasing needle. After drying in the air, the film is stained in the usual way. Since the glass plate is too large for use on the microscope stage, that portion bearing the stained film is cut down to 1 by 3 inches (2.5 by 7.5 cm.).

* From the Department of Pediatrics, Washington University School of Medicine and the St. Louis Children's Hospital.

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## REPORT OF A CASE OF WOOD ALCOHOL POISONING WITH UNUSUAL COMPLICATIONS

SAMUEL BARBASH, M.D., ATLANTIC CITY, N. J.

Nov. 4, 1920, J. H. was admitted to the Atlantic City Hospital in a state of active delirium. He had been given a drink of whisky containing wood alcohol. He could not answer questions, and kept up a rambling chatter. He did not know where he was nor how he got there.

He was of good height, about 50 years of age, and well nourished but flabby. He could see and distinguish fingers, and count them. The next day he could see not at all, or if so, for just a second or two.

His family and personal history was negative. He said that he had been a heavy drinker for some years.

He consulted a physician before entering the hospital for an attack of nausea, due in all likelihood to his drinking. He was constipated.

After a day or two in the hospital, he had considerable meningeal irritation with positive Kernig's and Babinski's signs, and a lumbar puncture was performed, 41 c.c. of slightly turbid fluid being withdrawn. It came out in a good stream, indicating considerable pressure. After the lumbar puncture, he quieted down and did not attempt to get out of bed for a while, whereas previously it had been necessary to use restraint, as he was always trying to get out. The blood pressure was 160 systolic and 100 diastolic. The spinal fluid was sterile for organisms. Spinal fluid Wassermann and blood Wassermann tests were both negative. Blood examination revealed 3,220,000 red blood cells; 7,200 white blood cells; 50 per cent. hemoglobin; 73 polymorphonuclears, 26 lymphocytes and 2 large mononuclear cells. The color index was 7+. The red blood cells were slightly irregular in size and shape. The urine was normal, except for a faint trace of albumin.

For the first eight days after admission, the patient seemed to be slowly progressing toward recovery. He was less noisy, but had to be restrained. He was able to answer a question or two, and then would lapse into his mental confusion. He took his nourishment well.

On the ninth day it was noticed that his pulse could not be obtained at the right wrist, and the fingers became slightly bluish. On following up the radial artery we found that no pulsation could be obtained, and it was not until we palpated and auscultated the axillary artery that we obtained any pulsation whatever. After the first day of discovery, the point at which pulsation could be felt receded toward the axillary about 1 inch (2.5 cm.) before it stopped. The fingers were bluish and cold, and there was absence of sensation to the hand, and diminution but not absence of sensation to the elbow. The circulation to the upper arm and forearm was partly sustained by collateral circulation. The hand received very little blood, but still enough to feed the fingers for some days before gangrene became complete.

A coagulation time test showed one minute and forty seconds.

November 19, six days after this condition was noted, Dr. H. I. Silvers opened the artery and endeavored to remove the thrombus, but unfortunately the entire arterial tree of the forearm and hand was filled with clot and the operation was unsuccessful: circulation could not be reestablished.

Following the attempt to remove the thrombus, the patient's hand gradually became more and more cyanotic and the collateral circulation to the hand became more and more impaired, until the hand had become gangrenous with the

exception of the little finger, which had some blood supply. Within two weeks the hand was completely gangrenous, and a line of demarcation had established itself at the wrist.

A few days afterward, Dr. Silvers amputated the hand, wrist and the distal end of the forearm. In order to obtain tissues with a good blood supply, the amputation was done at the middle of the forearm. The stump was slow in healing, and drained for a number of months. Finally, a sequestrum of bone was removed from the remaining portion of the ulna, before healing was complete. It was also necessary to keep the stump warm in order to maintain a good blood supply to the parts.

The medical treatment in this case was entirely symptomatic. At first the patient received sedatives, such as morphin and atropin, bromids and paraldehyd. Strychnin sulphate was given for the tonic effect, and potassium iodid for the alterative effect. Sodium citrate was given for a number of days, and we were able to bring the coagulation time test up to six minutes and thirty seconds by Jan. 14, 1921. The blood pressure dropped to 132 systolic and 80 diastolic. The lumbar puncture seemed to relieve the meningeal irritation and did not have to be repeated.

Sodium bicarbonate was given in the beginning in 1 dram (4 gm.) doses, frequently administered.

The patient today is able to walk about, having regained his sight to some considerable extent. His mind, while very much clearer than before, is still not normal. He shows signs of mental confusion.

I have been unable to find any record of thrombosis following wood alcohol poisoning.

1902 Pacific Avenue.

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# New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

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**BUTYN.** — Paraminobenzoyl-gammadinormalbutylaminopropanol sulphate.—$[NH_2.C_6H_4.COO(CH_2)_3.N(C_4H_9)_2]_2.H_2SO_4$. The normal sulphate of a base resembling the base of procaine (paraaminobenzoyl-diethylaminoethanol); but it differs in that butyn possesses a butyl group in place of the ethyl group of procaine base, and a propanol group in place of the ethanol group.

*Actions and Uses.*—Butyn is a local anesthetic proposed as a substitute for cocaine, particularly in surface anesthesia, as for the eye, nose and throat. It has the special advantage of acting through intact mucosae almost as effectively as cocaine. On the normal human eye, a 0.5 per cent. solution of butyn is less effective than a 1 per cent. solution of phenacaine (holocaine), but more efficient than a 1 per cent. solution of cocaine or a 1 per cent. solution of eucaine. Butyn solutions are nonirritant.

When injected hypodermically into albino rats, the toxicity of butyn is two and one-half times that of cocaine; but the lethal dose (injected intravenously into cats) is about equal to that of cocaine. Pharmacologic study indicates that butyn may take the place of cocaine, in whole or in part, for surface anesthesia of mucous membranes and that it may be superior for this purpose, especially for use in the eye, to other anesthetics, for the reason that it can be used in materially lower concentrations (presumably because of more prompt absorption). On the other hand, it does not appear promising for injection anesthesia or for spinal anesthesia, since its toxicity is materially greater than that of procaine.

A committee of the Section on Ophthalmology of the American Medical Association (*J. A. M. A.* **78**:343 [Feb. 4] 1922) reports the successful use of butyn in practically all operations on the eye and in some operations on the nose and throat. The committee concluded that butyn is more powerful than cocaine, a smaller quantity being required; that it acts more rapidly than cocaine, and that the action is more prolonged. So far as the experiences of the committee go, butyn in the quantity required is less toxic than cocaine. The committee found butyn superior to cocaine in that it produces no drying of the tissues and no change in the size of the pupil and that it has no ischemic effect.

*Dosage.*—For ophthalmologic work, butyn is generally used in 2 per cent. solutions. A single application produces, within one minute, an anesthesia sufficient to permit the removal of superficially placed foreign bodies, the application of irritant astringents and the use of the tonometer. Four instillations, three minutes apart, permit operative work within five minutes after the last instillation, producing an anesthesia sufficient to perform all of the commoner operations on the eye. In nose and throat work, solutions of from 2 to 5 per cent. are usually employed. Butyn solutions may be sterilized by boiling.

Manufactured by The Abbott Laboratories, Chicago. U. S. patent 1,358,751 (Nov. 16, 1920; expires 1937). U. S. trademark 147,893.

*Butyn Solution, 2 per cent.*

*Butyn Tablets, 0.2 Gm. (3 grains).*

*Butyn and Epinephrin Hypodermic Tablets:* Butyn 0.01 Gm. (⅙ grain), epinephrin-Abbott, 0.05 Mg. (1/1250 grain).

Butyn is a colorless, odorless solid which rapidly produces a sense of numbness when placed upon the tongue.

It melts at from 98 to 100 C.

Butyn is soluble in less than its own weight of water at 20 C. It dissolves slowly in cold water, but rapidly in hot water. It is very soluble in warm alcohol and in acetone, from which it does not readily separate on cooling. It is slightly soluble in chloroform, and insoluble in ether.

From aqueous solutions of butyn, alkali hydroxides, carbonates, and bicarbonates precipitate the free base as a colorless oil. When the separated base is exactly neutralized with hydrochloric acid, the white hydrochloride crystallizes out; after drying at 100 C., these crystals melt at 151 C.

Dissolve one gram of butyn in 10 Cc. of water. Separate portions of the solution yield a white precipitate with potassium mercuric iodide solution; a brown precipitate with iodine solution; a brown precipitate with gold chloride solution; and a yellow precipitate with picric acid solution. A portion to which barium chloride solution is added gives a white precipitate (*distinction from procaine*).

Dissolve about 0.1 Gm. of butyn in 5 Cc. of water, add 2 drops of diluted hydrochloric acid and 2 drops of sodium nitrite solution (10 per cent.) and mix with a solution of 0.2 Gm. of betanaphthol in 10 Cc. of sodium hydroxide solution (10 per cent.). A scarlet red precipitate is formed (*distinction from phenacaine which gives a white precipitate*).

To a solution of about 0.1 Gm. of butyn in 5 Cc. of water, add 3 drops of diluted sulphuric acid and mix with 5 drops of potassium permanganate solution. The violet color of the latter disappears immediately (*distinction from cocaine*).

Dissolve about 0.1 Gm. of butyn in 1 Cc. of sulphuric acid. The solution is colorless (*organic impurities*).

Dissolve 0.1 Gm. of the salt in 10 Cc. of water and saturate with hydrogen sulphide. No coloration or precipitation occurs (*salts of heavy metals*).

Incinerate about 0.5 Gm. of butyn, accurately weighed. There is not more than 0.2 per cent. residue.

**PITUITRIN "O."**—Pituitrin obstetrical. An extract of the posterior lobe of the pituitary body of cattle, free from chemical preservatives, approximately two and one-half times the strength of Solution of Hypophysis, U. S. P. It is standardized according to the method of Hamilton and Rowe (*J. Lab. & Clin. Med.* **2**:120 [Nov.] 1916).

*Actions and Uses.*—See general article, Pituitary Gland (New and Nonofficial Remedies, 1921, p. 219).

*Dosage.*—From 0.2 to 1 Cc. (3 to 15 minims), hypodermically or intramuscularly.

Manufactured by Parke, Davis and Co., Detroit. No U. S. patent. Trademark 76,722.

*Ampoules Pituitrin "O," 0.5 Cc.*

*Ampoules Pituitrin "O," 1 Cc.*

**SOLUTION OF POST-PITUITARY-G. W. CARNRICK CO.**—An extract of the posterior lobe of the pituitary body of cattle, free from chemical preservatives. It is standardized by the method of G. B. Roth (Bull. 100, U. S. Hygienic Laboratory) so that 1 Cc. diluted twenty thousand times has the same activity on the isolated uterus of the virgin guinea-pig as a 1:20,000,000 solution of betaaminazolylethylamine hydrochloride.

*Actions and Uses.*—See general article, Pituitary Gland (New and Nonofficial Remedies, 1921, p. 219).

*Dosage.*—See Solution of Hypophysis (New and Nonofficial Remedies, 1921, p. 221).

Manufactured by G. W. Carnrick Co., New York. No U. S. patent or trademark.

*Ampules Solution of Post-Pituitary-G. W. Carnrick, 1 Cc.*

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SATURDAY, FEBRUARY 11, 1922

## CAN HUMAN CANCER BE TRANSPLANTED INTO LOWER ANIMALS?

At least as far back as the time of Peyrilhe, 1773, attempts were made to inoculate human tumors into animals, but none have as yet met unequivocal success. Since most unsuccessful experiments do not appear in print, the total number of these attempts must have been enormous, in view of the many that have been reported. The recent study of transplantable tumors in animals has produced little to encourage the notion that human tumors can be readily transplanted to the body of a laboratory animal, since the striking characteristic of transplantable tumors is the extreme degree of specificity they exhibit in respect to the necessary identity of donor and recipient. Mouse cancers will not grow when transplanted into rats, and usually they can be implanted successfully only into the very same race of mice, often only into other mice of the same particular breeding stock or of the same immediate ancestry. A sarcoma transplanted readily from white rat to white rat usually will not grow in a wild gray rat, and perhaps not even in hybrids between white and gray rats. As far as human tumors go, the literature has records of actual attempts to transplant cancer even from man to man without success, and hence the chance with an animal recipient would be small indeed, unless extended experiments with anthropoids were possible; a few such have been tried, with only negative results.

Keysser [1] points out as the minimum requirement for establishing successful cancer transplantation that (1) the resulting new growth must appear at the point of inoculation; (2) it must correspond in microscopic structure with the inoculated tumor, and (3) it must exhibit progressive growth and be susceptible of further repeated inoculation into other animals of the same species. To the criteria of Keysser's list we might also add insistence on exclusion of the possibility that the tumor is a spontaneous growth of the recipient animal. Applying the standard described, Keysser finds himself unable to accept as proved any of the cases reported as transplantation of human tumors into lower animals. The commonest error undoubtedly is the mistaking for sarcoma of granulation tissue masses replacing inoculated tumor material. Among the most suggestive reports is that of Dagonet, who inoculated a lymph gland metastasis of a human penis carcinoma into the peritoneal cavity of a rat, observing a year later nodules in the mesentery and liver which resembled the human growth in consisting of hornified epithelium. In view of the capacity of hornified epithelium to retain vitality under unfavorable conditions, the possibility exists that these nodules were not actual growths but merely surviving cells, especially as no transplantations were attempted. Lewin did succeed in transplanting a round cell sarcoma found in a dog after inoculation of a human ovarian carcinoma, but here the discrepancy in structure between the implanted tumor and the one found in the dog raises doubt as to their relationship.

Keysser can find no better cases than these in the literature, but reports his own results with a metastatic nodule from a human scrotal sarcoma injected into the livers of ten mice. In the liver and spleen of one of these mice, nine months later, nodules of sarcoma structure were observed which were successfully inoculated into many subsequent generations of mice. This is the only success obtained by Keysser in many experiments extending over several years, and is ascribed to selecting a tumor of maximum resistance, as shown by its having continued to grow rapidly in spite of radium treatment and attempted immunization, or sensitization to the radium, by injection of tumor autolysates. Even this case is not completely conclusive, for the period of nine months between inoculation and the finding of the growth is a long period in the lifetime of a mouse. Furthermore, sarcomas are not as free from possibilities of misinterpretation as carcinomas, and spontaneous sarcomas and sarcoma-like growths have been observed not infrequently within the abdominal cavities of laboratory mice. The possibility of securing transfer of a true neoplasm between species so remote as man and mouse is so small in view of the failure to secure transfers between much more closely related species, such as the rat and the mouse, that only the most completely convincing results can be accepted. We should at least demand more than one such successful experiment before accepting as proved so heterodox a phenomenon.

Nevertheless, we must admit that we have no *a priori* reason for denying that transplantation between widely separated species is possible, and there is some evidence in favor of the opposite conclusion. For instance, of late several Japanese experimenters have been describing the inoculation of incubating eggs with tumor tissue. This is readily done with fowl tumors, and sometimes cells from mammalian tumors, even from human cancers, have taken hold and grown

1. Keysser, F.: Uebertragung menschlicher maligner Geschwülste auf Mäuse, Arch. f. klin. Chir. **114**: 730, 1920.

in the developing fowl ovum.[2] These growths are necessarily of too short duration to correspond to an actual inoculation of a living animal with a cancer; for, commonly enough in transplantation experiments, inoculated cells live for a short time in a foreign host, and even grow a little, only to disappear sooner or later. It also is to be mentioned that several Japanese workers recently report in abstract successful transplantations of carcinomas and sarcomas between rats and mice and even more divergent species; but as yet sufficient details have not come to us to permit of their evaluation. We cannot fail to point out, however, the large amount of experimental cancer investigation that is now going on in Japan, largely inspired by Professor Yamagiwa of the University of Tokyo and his success in producing cancer in animals by painting tar on the skin, a method which, as Murray says in the latest report of the Imperial Cancer Research Fund of London, "is bound to take a prominent place in the experimental study of the origin of cancer." These, and other contributions along the same line, indicating at least partial success in transplanting tumors into alien species, make further progress in this direction seem possible. Presumably, if human tumors could be set growing in laboratory animals, something new might be learned about them; but in all probability we shall learn more about cancer from studying its behavior in more receptive and less unnatural environments.

## CLINICAL SPIROMETRY AND THE VITAL CAPACITY OF THE LUNGS

The expression "vital capacity" of the lungs has long been employed to designate the quantity of air that can be breathed out by the deepest possible expiration after the deepest possible inspiration. It is regarded as a rough measure of lung capacity, and has long been determined in the physical examination of persons engaged in gymnastic exercises. The vital capacity shows a considerable range in absolute values determined for admittedly healthy, normal persons, the variations being accounted for largely by the differences in the size of the individuals examined; an average figure for an adult man is 3,700 c.c. The data in regard to this factor are usually secured by spirometry.

It seems almost obvious that any considerable decrease in the vital capacity of a person must represent a decided physiologic disadvantage. For example, interference with pulmonary ventilation may occur when a pleural effusion arises; and the difficulty presents itself in any form of pulmonary atelectasis. More than half a century ago it was proposed to use the study of the vital capacity of the lungs as an aid in the diagnosis of pulmonary diseases, notably tuberculosis. Not until recently, however, when vital capacity measurements often were a decisive factor in the selection of candidates for the aviation services of the armies at war, was attention directed again to the subject. The new interest in the problems has been stimulated particularly by Dreyer in Great Britain and by Peabody and his associates in this country. The measurement of vital capacity appears to be a simple and harmless method of determining the actual physical fitness or limitations of a patient. In pulmonary tuberculosis, Wittich, Myers and Jennings [1] have come to the conclusion that it will aid materially in the accurate classification of the cases, and in determining the progress of the disease and the influence of treatment. Likewise the Boston investigators [2] assert on the basis of clinical observations that the vital capacity of the lungs is of especial interest in heart disease, as well as in pulmonary tuberculosis, serving in both these conditions as an index of the clinical condition of the patient. As the disease becomes more severe, the vital capacity falls; and when the patient improves, the vital capacity increases and approaches the normal.

It is not difficult to understand how a pleural effusion can interfere with the movement of the lungs and thereby reduce the vital capacity. Peabody and Sturgis,[3] however, have pointed out that in heart disease the circumstances are often less simple. The tendency to dyspnea on exertion increases progressively as the vital capacity falls, and there is abundant evidence to indicate that the interference with pulmonary ventilation is an important factor in producing dyspnea; but, particularly in the early stages of heart disease, an increased tendency to dyspnea associated with a decrease in vital capacity may be present without any physical signs of involvement of the lungs or pleural cavities. The question is thus raised as to whether the low vital capacity in heart disease depends on the fact that cardiac patients are feeble and easily fatigued. An answer has been secured by observations recently concluded in the Medical Clinic of the Peter Bent Brigham Hospital. The vital capacity was tested in patients with great physical weakness but without disease of the heart or lungs. Most of them were suffering from pernicious anemia, a disease which exhibits general weakness and tendency to dyspnea on exertion as outstanding symptoms. The results showed surprisingly little variation from normal pulmonary ventilation, being in no instance less than 74 per cent. of the expected "normal" based on body surface. As patients with severe heart disease may have a vital capacity that is 75 per cent. below the normal, whereas

2. Kiyono, Sueyasu and Tsuiji: Inoculation of Fowl Embryos with Human Cancer Tissue, Gann (Japanese Journal of Cancer Research), **13**: 1 (March) 1919.

1. Wittich, F. W.; Myers, J. A., and Jennings, F. L.: A Study of the Effects of Pulmonary Tuberculosis on Vital Capacity, J. A. M. A. **75**: 1249 (Nov. 6) 1920.

2. Peabody, F. W., and Wentworth, J. A.: Clinical Studies on Respiration, Arch. Int. Med. **20**: 443 (Sept.) 1917. McClure, C. W., and Peabody, F. W.: Relation of Vital Capacity of Lungs to Clinical Condition of Patients with Heart Disease, J. A. M. A. **69**: 1954 (Dec. 8) 1917.

3. Peabody, F. W., and Sturgis, C. C.: Clinical Studies of the Respiration, VII, The Effect of General Weakness and Fatigue on the Vital Capacity of the Lungs, Arch. Int. Med. **28**: 501 (Nov.) 1921.

the weakest persons without cardiac involvement tested by Peabody and Sturgis exhibited a decrease of not more than 26 per cent., it seems unlikely that weakness per se will account for a decrease in the vital capacity of the lung amounting to more than 20 or 30 per cent. below normal standards.

Nor did specially devised attempts to fatigue the respiratory apparatus furnish any further evidence that fatigue and general weakness are important elements in reducing the vital capacity of the lungs in heart disease. Repeated tests of the vital capacity were made every fifteen seconds for ten minutes in patients with severe cardiac disorder. The exertion involved was considerable, but no evidence of fatigue of the muscles of respiration was observed. The volume of the maximum expiration was as great at the end of the series of tests as at the beginning. Athletics and physical exercise may improve the vital capacity of healthy persons to the extent of 30 per cent. above the average normal. The general range of increase of vital capacity above the normal standards associated with the best physical training is thus approximately the same in amount as the decrease below the standards due to extreme physical weakness.

## THE RELATION OF GALLSTONES TO PEPTIC ULCER

Gallbladder disease, appendicitis and peptic ulcer are so frequently found in the same patient that we are justified in assuming this association to be more than accidental. It has long been held that appendicitis could cause cholelithiasis through the carrying of bacteria from the appendix to the liver in the portal vein to be excreted in the bile. If the organisms are delayed in the gallbladder by a stagnation of bile, they may cause stones. Any other infection in the portal system may act in the same way. Kelling [1] briefly recalls the various theories of the causation of duodenal ulcer, such as toxemia and stasis from chronic appendicitis and reflex spasm of the duodenal vessels resulting in necrosis, and proposes the theory that the cocci excreted in the bile are rubbed into the follicles of the duodenum by the active peristalsis. Small abscesses result, and ulcers follow. Malpositions of the duodenum and a diet poor in alkaline salts are considered as secondary factors in the process.

The differential diagnosis between gallstones and peptic ulcer is a more common problem to the practitioner than is the question of etiology. Kelling agrees with Barker [2] and Cheney [3] that all the symptoms of duodenal ulcer may be duplicated by gallstones. He explains that the patient cannot differentiate between gallbladder contractions and the pyloric contractions. He favors Carlson's view that the pain of ulcer is due to the peristaltic action in the ulcerated area. A gallbladder that empties with difficulty gives a pain two or three hours after eating which cannot be distinguished from the pain of ulcer. During early digestion the gallbladder fills. It attempts to empty at the height of digestion or as soon as the acid chyme reaches the duodenum. Stones may be driven into the cystic duct along with the bile. Painful contractions result. The acid from the stomach stimulates contractions of both the gallbladder and the duodenum. Food and alkali relieve the pain of gallbladder disturbance as well as that arising from ulcer. The painful contractions do not reappear if the stimulus, free acid, is eliminated. According to Kelling, gallstones may even duplicate the night distress of ulcer. Physiologists have shown that, during sleep, the whole gastrointestinal tract has slow rhythmic contractions for thirty minutes at two-hour intervals. This night peristalsis is shown by the gallbladder as well as by the stomach and duodenum. The bladder fills with bile in the intervals. Any stones forced out with the bile cause obstruction and pain. The proximity of the gallbladder, duodenum and pylorus with their associated nerve supply goes far to explain the similarity of symptoms. Kelling mentions a few of the major differential points. Typical colics with icterus speak, of course, for gallbladder disease. Stones in the cystic duct often settle the diagnosis by making the gallbladder palpable. The gastric acidity is lowered or absent in more than one third of gallbladder cases. It is very uncommon for the free acidity to be decreased in ulcer cases. Gross blood in the stools or vomitus indicates ulcer, but occult blood may result from ulcerated gallbladders. The roentgen ray may be useful in some cases.

It is probably more than a coincidence that the same person should so commonly show pathologic changes in both the gallbladder and the duodenum. Kelling has added a pathogenic relation to the well established anatomic and physiologic connections of the two structures. His conclusion, and the fact that such a pathologic combination is frequently seen, emphasize the need of more case reports and close observation of operative and necropsy material.

1. Kelling: Die Beziehungen zwischen Cholelithiasis und Ulcus Duodeni, Arch. f. Verdauungskr., June, 1921.
2. Barker, L. F.: Hints for Diagnosis of Disease of Gallbladder and of Biliary Passages, J. A. M. A. **75**: 1104 (Oct. 23) 1920.
3. Cheney, W. F.: Diagnosis of Gallbladder Disease, Am. J. M. Sc. **160**: 469 (Oct.) 1920.

**Hookworm Disease in Nicaragua.**—The government of Nicaragua has issued illustrated reports of the work accomplished by the uncinariasis department from Oct. 1, 1919, to Sept. 30, 1921. The director of the department is Dr. D. M. Molloy of the Rockefeller Foundation, and the assistant director, Dr. J. D. Tijerino. Up to Sept. 30, 1921, 159,844 persons had been examined, and 104,267, i. e., 65.24 per cent., were found infected. During the year Oct. 1, 1920 to Sept. 30, 1921, 41,423 treatments were given and 10,467, i. e., 41.23 per cent., were cured. Hookworm work was carried out during the year in the cities of Managua, León, Granada and Rivas; in the towns of San Jorge, Buenos Aires, Potosí, Belén, Tola, and the rural districts of Rivas, San Jorge, Buenos Aires, Potosí, Belén and Tola. Quite a number of popular lectures were given during the year, and much literature was distributed. The government report is very well illustrated and constitutes an interesting record of the work so far accomplished.

# Current Comment

## THE SHEPPARD-TOWNER BILL—PUBLIC HEALTH OR POLITICS?

At a recent meeting of a medical society, a member asked, "Why didn't the A. M. A. prevent the passage of the Sheppard-Towner bill?" The same question has been asked many times by others. The Sheppard-Towner bill was passed, not for public health reasons but on account of political exigencies. Women had just been given the vote. No one knew how they would use it. Nearly every congressman had a distinct sense of faintness at the thought of having all the women in his district against him. Male opposition he was used to. But the women's vote! Awful thought! Suppose all the women voted against him! Shrewdly and persistently, the idea was impressed on the minds of the women of the country that the Sheppard-Towner bill was a wonderful measure; that in some miraculous fashion it would save thousands of lives of mothers and babies now being lost; that it was the one bill all women must support. At the same time, all members of Congress were told again and again that the women of the country demanded the measure and that each congressman's future depended on his vote on this bill. Members of Congress of years' experience say that the lobby in favor of the bill was the most powerful and persistent that had ever invaded Washington. As the presidential campaign approached, the apprehension increased. Each party wanted the women's vote. The Democratic party specifically endorsed the bill in their platform. The Republican platform did likewise but somewhat vaguely. Republican politicians perhaps feared the contrast. Presumably to offset this Democratic bid for women's votes, Mr. Harding in his campaign speeches practically pledged his party to the passage of the bill. In his first message to Congress, he specifically endorsed it and called on the Republican majority in Congress to pass it.[1] His personal medical representative, and several other influential medical men, appeared before the House committee and urged its passage. But as passed by the Senate, it was an impossible measure. The House Committee on Inter-State and Foreign Commerce, unable to accept the original Senate bill, but under strong pressure and orders from above to report out some bill, struck out the old one completely, substituted an entirely new bill, which is practically only an appropriation measure, and reported "that the bill should pass." The party leaders all fell in line. Finally, just before the vote was taken, the floor leader of the Republican majority, Mr. Mondell, in a ten minute speech, said nothing about the merits of the bill but did say that he believed in keeping pledges and that he asked all the Republicans in the House to vote for it. The result, as might have been expected, was that the bill passed by a vote of 279 to 39. The passage of the bill could not have been prevented. Its adoption, under the circumstances, was a political necessity and a redemption of party pledges. We repeat: It was not passed as a health measure; its inception, the agitation for its passage and its support up to the final adoption were political. There were just two factors: the women's vote and the politicians' fear. So much for the political situation. While THE JOURNAL realized that it was fighting almost a lost cause, it did, nevertheless, oppose the measure most vigorously, both by utilizing its columns and by furnishing congressmen with arguments and data against the bill. In fact, several congressmen in opposing the bill quoted directly from THE JOURNAL's editorials to indicate the attitude of the medical profession. THE JOURNAL believes that its opposition had much to do with the modification of the original Senate bill to the bill which finally passed—a bill which resembled in name only the original Sheppard-Towner bill and which is less objectionable. The bill as finally passed, it should be remembered, is merely an appropriation act and makes it optional with the individual states to accept federal funds made available by it.

1. President Harding in his Annual Message to Congress, April 12, 1921, says: "In the realms of education, public health, sanitation, conditions of workers in industry, child welfare, proper improvement and recreation, elimination of social vice, and many other subjects, the Government has already taken a considerable range of activities. I assume that the maternity bill, already strongly approved, will be enacted promptly, thus adding to our manifestations of human interest."

## TYPHOID VACCINATION AND HEART DISEASE

For nearly two years past, the opponents of vaccination and disease prevention have been parading as their champion a Dr. Walter R. Hadwen of England. This gentleman's standing as a scientific authority has been pretty thoroughly aired. In two addresses, one in Philadelphia and one in Boston, he made the statement that the British government was paying £4,000,000 ($20,000,000) per year pensions to soldiers invalided and discharged from the British army for heart disease. He also asserted that nine tenths of these cases were due to typhoid vaccination. This astonishing charge was brought to the attention of Sir Thomas Goodwin, Director-General of the British Army Medical Service, by Major General Merritte W. Ireland, Surgeon-General of the United States Army. The correspondence appeared in THE JOURNAL, Jan. 21, 1922, p. 233. In his reply, General Goodwin states officially that the deductions made by Dr. Hadwen are entirely contrary to the facts and that the true causes of the cardiac troubles for which pensions were being paid had been established by careful investigation by highly qualified experts. This investigation showed that between 50 and 60 per cent. of all heart cases were the result of infections, especially rheumatic fever, chorea, pneumonia, pleurisy, bronchitis, influenza, diphtheria, scarlet fever, trench fever and dysentery. Investigation of a special group showed that heart lesions had been present in 43 per cent. on admission to the service, that 12 per cent. developed heart symptoms during training, and that 45 per cent. developed them in active service as the result of shock, wounds, burns, accident, gas poisoning, strain and alcohol, and that not a single case of heart disease had occurred which could be attributed to typhoid vaccination. This question, says General Goodwin, was made the subject

of special inquiry in the B. E. F. during the war, and no evidence of any harmful effects was found. On the contrary, the records of the British War Office show that in the Boer War from 1899 to 1902, with a mean annual strength of only 208,226, there were 57,684 cases of typhoid and 8,022 deaths, an annual death rate of 14.6 per cent. In the World War, with a mean annual strength of 2,000,000, or almost exactly ten times as many men as in the Boer War, there were only 20,139 cases of typhoid and 1,191 deaths, an annual death rate of 0.139 per cent., or less than one-one hundredth of the death rate of the Boer War. Commenting on General Goodwin's letter, General Ireland states that our own War Department records show that, out of a total of 4,128,478 men in our army from April 1, 1917, to Dec. 31, 1919, there were 1,529 cases of typhoid and 227 deaths, or 0.0054 per cent. Dr. Hadwen's "facts" and "deductions" seem to be of the sort peculiar to his kind. They sound impressive, but they will not bear examination.

## THE BLIND POPULATION

Improvement in medical knowledge and in education of the public are the contributing causes for a decrease in the blind population of the United States from 57,272 in the census of 1910 to 52,617 in 1920, according to an announcement made by the Bureau of the Census. The figures show that there are 49.8, or nearly fifty, blind persons to every hundred thousand population, or an average of one blind person to every 2,000 population. Males predominate over females with about three to two. Blindness was most common among Indians, with about 200 blind for every hundred thousand in the population. Negroes also had a comparatively large amount of blindness, with 60 blind per hundred thousand population. There are 48.3 blind per hundred thousand white persons, and only 23.2 per hundred thousand Chinese and Japanese. Of the geographic divisions, New England has the greatest amount of blindness, with 63.5 per hundred thousand population, while the least was the West South Central states, which had but 41.6 per hundred thousand. Of the states, New Mexico has 153.2 per hundred thousand, while, at the opposite extreme, Wyoming had only 15.4.

## AGAIN, NO SHORTAGE OF PHYSICIANS

On another page we publish a report [1] on the scarcity of physicians in the rural districts of Pennsylvania. It shows that there is an overlarge supply of physicians in the cities of that state which more than offsets the lack of physicians in rural districts. This further corroborates the statements repeatedly made by THE JOURNAL, that, although physicians are scarce in rural communities, there is no scarcity of physicians in the country as a whole; the conditions referred to are found not only in Pennsylvania but in all the other states as well. The latest figures [2] show that Pennsylvania is well supplied wtih physicians as compared with the rest of the country. It has one physician to every 768 people, while in the country as a whole there is one to every 726 people. This report makes no reference to the real reason why physicians are not in rural communities. In a conference in Kentucky held recently between the House of Delegates of the Kentucky State Medical Association and members of the legislature, this problem was the subject of a practical discussion. There it was clearly demonstrated that the lack of doctors in rural communities was not due to a general scarcity of physicians, nor to higher educational requirements, but to economic conditions—to the fact that physicians will not locate in districts where they cannot secure a reasonable income and where living conditions are poor. The saving of one or two years of time in intermediate and secondary education, as recommended in the Pennsylvania report, is indeed desirable; but that reform would have no effect whatever in supplying doctors for rural communities. It is quite clear that the only way by which physicians can be induced to locate in rural districts is to make those districts more attractive places in which to live, from the professional, social and economic points of view.

1. Report of the Committee on Medical Education of the Philadelphia County Medical Society, p. 453.
2. See table on Proportion of Physicians to Population, J. A. M. A. **76**: 1248 (April 30) 1921.

## BACTERIOLOGY OF THE DUODENAL SECRETION

Since the introduction, in 1909, of the use of the duodenal tube for aspirating contents of the intestine beyond the pylorus, numerous applications, both diagnostic and therapeutic in purpose, have been suggested. The procedure has enabled the physiologic chemist to gain a clearer insight into the activity of the secretions in the upper parts of the small intestine and, in particular, to examine their digestive enzymes. The duodenal tube has also made possible the examination of intestinal contents bacteriologically. Thus, Hoefert [1] has recently reported from the Rudolf Virchow Krankenhaus in Berlin that, under normal conditions of health, carefully aspirated duodenal secretion is usually practically sterile. On the other hand, when the gastric secretion shows hypo-acidity or when there is an approach to anacidity in the stomach, the bacterial flora of the duodenal fluid is abundant. The determining factor in securing absence of micro-organisms is the hydrochloric acid of the gastric secretion. When this is depressed, the same varieties of bacteria which gain a foothold and thrive under that condition in the stomach are to be found in the duodenum. They may include *B. coli*, streptococci and staphylococci, along with yeasts. Aside from the anomalies of secretion that arise in the stomach, various disturbances and diseases, such as tumors, malformations and inflammation of the gastroenteric tract, afford further favorable conditions for the growth of bacteria in the duodenum. The findings of Hoefert in Germany are by no means novel, for they were antedated by the comparable researches of MacNeal and Chace at the New York Post-Graduate Hospital. These investigators found that the bacteria counted microscopically in the fluids from the

1. Hoefert, B.: Ueber Bakterienbefunde in Duodenalsaft von Gesunden und Kranken, Ztschr. f. klin. Med. **92**: 221 (Nov. 15) 1921.

duodenum varied from 600 to 860,000 per cubic millimeter, the bulk of them being dead. Larger numbers of micro-organisms were found in the case of patients suffering from various diseases. Hence, gastro-enterologists have reached the conclusion that the number of bacterial colonies developed in cultures of duodenal fluid is, roughly, an index of the digestive derangement.[2] Furthermore, the bacteriologic study of the intestinal juice by the newer methods of duodenal aspiration may prove to be a valuable procedure in the early diagnosis of typhoid fever and in the detection of typhoid carriers.

## Association News

### ST. LOUIS SESSION

#### St. Louis Hotels

The Local Committee of Arrangements submits a list of St. Louis' leading hotels and indicates those which are designated as headquarters of the several sections. Those who desire hotel reservations are requested to write directly to the management of the hotel of their choice, stating the reservations that they desire to have made and the date on which they plan to reach St. Louis, as well as the length of time they will remain. If difficulty is experienced in securing the desired hotel accommodations, the Local Committee on Hotels of which Dr. Louis H. Behrens, 3525 Pine Street, St. Louis, is chairman, in cooperation with the Hotel Association and the Convention Bureau, will lend its assistance in securing desired reservations. It is urged that wherever possible groups will be arranged for so that the hotel accommodations may be assigned in a manner that will accommodate the largest number possible.

ST. LOUIS' LEADING HOTELS (ALL EUROPEAN PLAN), THEIR LOCATION AND RATES

| Hotel, with Number of Rooms * | Street Address | Without Bath Single | Without Bath Double | With Bath Single | With Bath Double |
|---|---|---|---|---|---|
| American, 275 | 7th and Market Streets | ..... | ..... | $2.50–3.00 | $4.00– 6.00 |
| *Diseases of Children* | | | | | |
| American Annex, 225 | 6th and Market Streets | ..... | ..... | 2.00–3.00 | 3.00– 6.00 |
| *Pathology and Physiology* | | | | | |
| *Pharmacology and Therapeutics* | | | | | |
| Beers, 114 | Grand and Olive Streets | $1.50 | $2.50 | 2.00–2.50 | 3.00– 3.50 |
| Brevort, 50 | 4th and Pine Streets | ..... | ..... | 2.00 | 3.00 |
| Cabanne, 43 | 5545 Cabanne Street | ..... | ..... | 12.00–37.50† | |
| Claridge, 350 | 18th and Locust Streets | ..... | ..... | 2.50–4.00 | 4.00–10.00 |
| *Obstetrics, Gynecology and* | | | | | |
| *Abdominal Surgery* | | | | | |
| Hamilton, 160 | Hamilton and Maple Streets | ..... | ..... | 2.00–2.50 | 3.50– 4.00 |
| Jefferson, 400 | 12th and Locust Streets | 2.50–3.00 | 4.00 | 3.00–8.00 | 6.00–10.00 |
| *Surgery, General and Abdominal* | | | | | |
| *Orthopedic Surgery* | | | | | |
| Laclede Hotel, 265 | 6th and Chestnut Streets | 1.50–2.00 | 2.50–3.00 | 2.50–3.00 | 3.50– 4.00 |
| Majestic, 200 | 11th and Pine Streets | ..... | ..... | 2.50–3.00 | 3.50– 4.00 |
| *Dermatology and Syphilology* | | | | | |
| *Nervous and Mental Diseases* | | | | | |
| Marion Roe, 200 | Broadway and Pine Streets | ..... | ..... | 1.50–2.00 | 3.00– 4.00 |
| Marquette, 400 | 18th and Washington Streets | 2.00–2.50 | 3.00–3.50 | 3.00–3.50 | 4.00– 6.00 |
| *Laryngology, Otology and Rhinology* | | | | | |
| Maryland, 240 | 9th and Pine Streets | 2.00 | 3.00 | 2.50–3.50 | 4.00– 5.00 |
| *Gastro-Enterology and Proctology* | | | | | |
| *Urology* | | | | | |
| Planters, 400 | 4th and Pine Streets | 2.00–2.50 | 3.00–3.50 | 2.50–5.00 | 4.00– 8.00 |
| *Ophthalmology* | | | | | |
| Plaza, 200 | 3300 Olive Street | ..... | ..... | 2.00–2.50 | 3.50– 5.00 |
| Roselle, 100 | 4137 Lindell Boulevard | ..... | ..... | 1.50–2.50 | 2.50– 3.50 |
| St. Francis, 120 | 6th and Chestnut Streets | 1.50–2.00 | 2.50–3.00 | 3.00–4.00 | 4.00– 5.00 |
| Statler, 650 | 9th and Washington Streets | ..... | ..... | 3.00–7.00 | 5.50– 9.50 |
| *Practice of Medicine* | | | | | |
| Stratford, 100 | 8th and Pine Streets | 1.50 | 2.50 | 2.50 | 3.50 |
| Terminal, 100 | Union Station | 1.50–2.00 | 3.00 | 3.00–3.50 | 5.00 |
| Warwick, 200 | 15th and Locust Streets | ..... | ..... | 2.00–4.00 | 4.00– 6.00 |
| *Stomatology* | | | | | |
| *Preventive Medicine and Public Health* | | | | | |
| Westgate, 125 | Kingshighway and Delmar Streets | 2.00 | 2.50 | 3.00 | 3.50 |

* Section hotel headquarters indicated by name of section following hotel. † Weekly rates only.

2. Aaron, C. D.: Diseases of the Digestive Organs, Philadelphia, 1921, p. 108.

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

### ALABAMA

**Hospital News.**—Work has been started on the new Central Alabama Hospital, Clayton. The building will be erected at a cost of $15,000.

**Malaria Control.**—It is announced by the state health officer that sixty-three malaria control projects are now under way in the state, as compared to one in 1917, and twelve in 1920.

**Appropriation for Hydrophobia.**—The governor has approved an appropriation of $25,000 for treatment at the Pasteur Institute of indigent persons who have been bitten by rabid animals. This sum will be taken from the dog license fund.

**Personal.**—Dr. Samuel K. Suggs, Montgomery, was elected president of the Montgomery County Medical Society at the annual meeting, held, January 7.——Dr. Samuel W. Welch, Talladega, has been reelected for a five-year term as state health officer.——Dr. Albert F. Moxey, U. S. Public Health Service, has been assigned to Alabama as director of malaria investigation.

### CALIFORNIA

**Oriental Birth Rate.**—The birth rate statistics published by the Census Bureau for white persons is given as 18.3, the lowest in the country; the rate for its colored population—largely Japanese—is 39.3, second only to that of one other state, Washington.

**Hospital News.**—An addition to Arroyo Sanitarium, Livermore, will be erected by the San Francisco board of supervisors, according to an agreement with the Alameda County board of supervisors. In return, Alameda County will provide beds for fifty San Francisco tuberculous patients.

### ILLINOIS

**Prescription Blanks Stolen.**—Reports from all over the country by physicians, stating the loss of their prescription

books, have been received recently. Dr. G. Lewis Bauer, Belleville, Ill., announces the loss of book number 173211, stolen from the drawer of his office. The serial numbers of the books are recorded, and it is expected that the prescriptions can be traced through these.

### Chicago

**County Hospital Accepts Leper for Cure.**—A leper was recently discovered in Rockford, and the government officials were notified; but the three colonies in America—in Louisiana, Massachusetts and California—were full. The health commissioner of Chicago was notified, and it has been arranged that the Cook County Hospital will treat the patient.

**Personal.**—The resignation of Dr. William E. Harsha as director of the Chicago Municipal Tuberculosis Sanitarium which was presented in December, 1921, has been accepted. Dr. John Dill Robertson, who recently resigned as commissioner of health of Chicago, has been appointed by Mayor Thompson to take the place of Dr. Harsha.——Dr. Herman N. Bundesen has been appointed health commissioner of Chicago to succeed Dr. J. D. Robertson.——Dr. Isaac Abrahams is in a serious condition in a local hospital as a result of being shot, he reports, by his colored office girl.

**Medical Society Discusses Organization Problem.**—A meeting of the North Side Branch of the Chicago Medical Society was held, February 2, to discuss problems of medical organization. At this meeting, the President-Elect of the American Medical Association and members of the Board of Trustees who were in Chicago for their regular session were invited guests. Dr. Austin A. Hayden, president of the branch, presided. Addresses were made by Dr. G. E. de Schweinitz, President-Elect of the American Medical Association, Dr. H. M. Brown, Milwaukee, who discussed county and state organization, and Dr. A. R. Craig, Secretary of the Association, who discussed the national organization. Among others, Drs. C. E. Humiston, president of the Illinois State Medical Society, Edward H. Ochsner, and from the Board of Trustees, Drs. Frank Billings, W. T. Williamson, Wendell Phillips and C. H. Richardson, took part in the discussion.

### INDIANA

**Physician Elected Mayor.**—Dr. George R. Daniels has been elected mayor of Marion.

**New Officers for State Sanatorium.**—At a meeting of the Indiana State Sanatorium Association, held recently, Dr. Alfred Henry, Indianapolis, was elected president; Dr. Gardner Johnson, Evansville, vice president, and Dr. Eric A. Crull, Fort Wayne, secretary-treasurer.

**Indianapolis Medical Society.**—At the annual meeting of the society, held, January 3, the following officers were elected for the ensuing year: president, Dr. Lafayette Page; first vice president, Dr. George S. Row; second vice president, Dr. Harry K. Langdon, and secretary-treasurer, Dr. William A. Doeppers.

**Fort Wayne Medical Society.**—At the annual meeting of the society, held recently, under the presidency of Dr. Edmund M. Van Buskirk, the following officers were elected for the year 1922: president, Dr. Adam L. Schneider; secretary, Dr. Miles F. Porter, Jr. (reelected), and treasurer, Dr. Elmer E. Morgan (reelected).

**Hospital News.**—A new three story fireproof hospital is being constructed at Greencastle, at a cost of $95,000. The building will be equipped with all modern improvements and will be known as the Putnam County Hospital.——Additions to the county hospital, Sunnyside, for the treatment of tuberculous ex-service men, have been completed.

**Personal.**—The mayor has appointed Dr. William H. Stemm a member of the board of health for North Vernon.——Dr. Charles C. Givens, Lewis, aged 71, was injured recently, when his automobile was smashed by a railroad train.——Dr. Myron L. Curtner, Vincennes, has been appointed physician for Knox County.——Dr. Ralph R. Coble has been appointed superintendent of the City Dispensary of Indianapolis.——Dr. Cleon Nafe has been made assistant superintendent of the City Hospital, Indianapolis.——Drs. Willis D. Gatch and John D. Garrett have resigned from the board of public health and charities of Indianapolis.——Drs. Harry W. Fitzpatrick, Merle Hoppenrath and Carroll C. Cotton have been made members of the Elwood board of health.——Dr. Herman C. Morgan has been reappointed secretary of the city board of health of Indianapolis.

### IOWA

**Surgical Society Clinic.**—A medical clinic under the auspices of the Iowa Clinical Surgical Society was held, January 28, at the Lutheran Hospital, Des Moines. Dr. Edward Starr Judd and Dr. William F. Braasch of the Mayo Clinic, Rochester, Minn., and Dr. Dean Lewis of Chicago attended the clinic.

### LOUISIANA

**District Medical Society.**—At the meeting of the Fifth Congressional District Medical Society, held, January 10, at Monroe, the following officers were elected for the ensuing year: president, Dr. Bunnie M. McKoin, Mer Rouge, to succeed Dr. Francis C. Bennet, Monroe; vice president, Dr. James E. Walsworth, Monroe, and secretary and treasurer, Dr. Charles H. Mosely, Monroe.

**Colombian Leper Found in New Orleans.**—Carlos Griffo of Colombia, South America, was passed by quarantine officers and registered at a New Orleans hotel recently. He was told by his physician in Colombia that he was suffering from a "nervous disease" and went to New Orleans for treatment, where it was found that he was a leper. He was sent to the government leprosarium at Carville.

**Hospital News.**—Plans have been approved for the state colony and training school for the feebleminded, Pineville, on the grounds of former Camp Beauregard. The building will be constructed to care for 2,000 patients; one half of this number will be admitted within the year. The main group of buildings will include sixteen separate dormitory units, segregating the sexes, and a separate group for negroes. Each dormitory will have an acre of ground, and will be equipped with all modern improvements. Dr. Edwin E. Evans, formerly of the East Louisiana Hospital for the Insane, has been appointed superintendent of the institution.

### MARYLAND

**State Medical Meeting.**—The annual meeting of the Medical and Chirurgical Faculty of Maryland will be held, April 25-27, at Baltimore, under the presidency of Dr. Arthur H. Hawkins, Cumberland.

**Personal.**—Dr. Roger I. Lee, professor of hygiene, Harvard University, lectured before the School of Hygiene and Public Health, Johns Hopkins University, on "The Physical Examination of Large Groups of Individuals," at its regular weekly lecture, February 6.

**Exemption for Medical Examiners.**—Exclusion of the state board of medical examiners from the list of boards which the state reorganization program proposes to place under the commissioner of state employment and registration was urged in a resolution by the Baltimore City Medical Society, February 3. Dr. Herbert Harlin, speaking on behalf of the board of medical examiners, stated that by depriving the board of the right to make its own expenditures and to maintain its own clerical force, the enactment would do away with a large part of the effective work which the board has been carrying on for years. His resolution was unanimously carried.

**Organization for School Health Work.**—Health Commissioner C. Hampson Jones has been authorized by the board of estimates to appoint three female physicians and three additional male physicians for physical examination of children in the high schools, and a part-time psychiatrist to examine children who are defective and backward in their studies. Salaries will be paid out of the $20,000 appropriation for health work allowed Dr. Jones in the budget for 1922. Drs. John A. T. Pfeiffer, Everhard Briscoe, Francis X. Kearney, Mabel Belt, Lucille Liberles and Jennie Brown have been appointed. They will be under the direction of Dr. H. Warren Buckler, director of public health work in the schools.

### MASSACHUSETTS

**New Professional Building.**—The old Tuileries Hotel, Boston, will be remodeled and used as a professional building devoted exclusively to physicians and surgeons.

**Hospital News.**—The new isolation pavilion at the Boston City Hospital, built at a cost of $32,000, was opened recently. This building will be occupied by special groups of children with contagious diseases.

**Personal.**—Dr. George L. Steele, Springfield, has resigned from the board of health, his resignation to take effect imme-

diately.——Dr. Robert Bonney was recently elected president of the East Boston Medical Society.——Dr. Isaac H. Coriat read a paper on "Medical Magic in Frazer's 'Golden Bough'" at the annual meeting of the Boston Medical Library, January 24.

**Health School Fund Named for Physician.**—Harvard authorities have named the fund for the establishment of the new school of public health in honor of Dr. Henry Pickering Walcott, Cambridge. The Rockefeller Foundation has agreed to give $2,000,000 to the fund, and Harvard professors will form the nucleus of the faculty of the new school. Dr. David L. Edsall has been appointed dean of the institution.

**Medical Gymnastic Building.**—Work will be started this spring on a new medical gymnastic building and infirmary at Springfield College, at a cost of $40,000. This institution will be called the Weiser Infirmary in honor of Dr. Walter R. Weiser, president of the Springfield Chamber of Commerce, and will be used for work on remedial gymnastics for crippled children and those suffering from after-effects of infantile paralysis. The building will be three stories high, 93 feet long and 43 feet wide, and will include a medical gymnasium, operating rooms, and a small ward.

**Health Officers Elected.**—At the meeting of the Massachusetts Association of Boards of Health, held recently, Dr. George L. Tobey, Clinton, was elected first vice president of the board; Dr. Francis P. Denney, Brookline, was made second vice president; Dr. William H. Allen, Mansfield, secretary, and Dr. Francis G. Curtis, Newton, treasurer. Dr. John W. Bartol, president of the Massachusetts Medical Society, addressed the meeting and urged support of the bill which is expected to be introduced at this session making vaccination compulsory in private schools as well as in the public schools. Dr. Frederick J. Ripley, Brockton, presided.

## MICHIGAN

Detroit **Medical Building.**—The contracts have been awarded for the construction of a medical building at Detroit, at a cost of approximately $1,650,000. The building will be fifteen stories high, and will be equipped with special hospital elevators, pharmacies and pathologic laboratories.

**Mental Deficiency Surveys Planned.**—Dr. Harley A. Haynes, superintendent of the Michigan Home and Training School, Lapeer, has accepted an offer from the National Committee on Mental Hygiene of the Russell Sage Foundation, New York City, to become director of the division of mental deficiency. He will appoint a staff of medical experts to conduct mental deficiency surveys in Arkansas and Kentucky, where such surveys have been requested.

**Hospital News.**—The addition to the Deaconess Hospital, Detroit, has been completed and can now accommodate 110 patients. The hospital was thrown open to the medical profession, January 6, and Dr. Plinn Morse read a paper on "The Prognosis of Nephritis."——The new Detroit Tuberculosis Sanatorium, Northville, was formally opened December 19. Thirty-two children, removed from the Herman Kiefer Hospital, were the first patients.

**Personal.**—T. L. Patterson, Ph.D., formerly of the physiologic department of the State University of Iowa College of Medicine, has been appointed professor and director of the department of physiology at the Detroit College of Medicine and Surgery, Detroit.——Dr. Arthur M. Hume, Owosso, has announced his resignation and retirement from duty as district field officer of the Veterans' Bureau, to resume private practice.——Dr. Carl S. Oakman, Detroit, has accepted the general managership of the Wilson Laboratories (manufacturing chemists), Chicago.——Dr. William E. Wilson, Grand Rapids, has accepted a scholarship from the Faculty of Medicine, Paris, and recently sailed for France.

## MISSISSIPPI

**Central Medical Society.**—A meeting of the society was held, January 17, to discuss medical legislation. Some of the bills already under consideration are: (1) exemption from taxation of all hospitals doing charity work; (2) cancellation of medical licensure when a physician is convicted of certain illegal practices, and (3) repeal of the privilege tax law.

## NEBRASKA

**Personal.**—Dr. Oswald H. Magaret, Papillion, has been appointed county physician.——Dr. Earl B. Erskine, Lyons, has been appointed acting assistant surgeon, M. C., U. S. Army, and will be stationed in Lafayette, Ind.

**New Medical Society.**—At a special meeting of physicians of Box Butte, Scotts Bluff, Morrill and Banner counties, held recently at Scottsbluff, the twelfth district of the Nebraska State Medical Association was organized and will meet twice a year. Dr. Minor Morris, Alliance, was elected president; Dr. Frank B. Young, Gering, vice president, and Dr. George J. Hand, Alliance, secretary-treasurer.

## NEW YORK

**Association of Tuberculosis Clinics.**—The annual meeting of the association was held, January 1, at the New York Academy of Medicine. Dr. James Alexander Miller and Dr. Louis I. Harris were reelected president and vice president, respectively.

**Personal.**—Dr. William L. Gould, Albany, has been appointed health officer in the fourth city district, to succeed Dr. William Rausch, who resigned recently.——Dr. Burdge P. MacLean has been appointed health officer of the town of Huntingdon.——Dr. Joshua Van Cott was elected president of the Long Island Physicians' Association at the meeting held January 29.

**Governor Signs New Hospital Bill.**—Governor Miller has signed the McGinnies bill, which provides for the construction of a new state hospital for the insane at Creedmoor, L. I. When this hospital is completed, the Kings Park State Hospital will be set aside entirely for World War veterans suffering from mental diseases. The new institution will be known as the Brooklyn State Hospital, Creedmoor Division, and will be under the management and control of the state hospital commission. The bill carries an appropriation of $2,979,782.

**Influenza and Pneumonia.** — According to an official announcement of the state health department under date of February 2, although New York City seems to be experiencing an outbreak of influenza and pneumonia, there appears to be no unusual prevalence of those diseases up-state, as shown by information coming in daily from hundreds of local registrars throughout the state. The reports from New York City, in the opinion of Dr. Hermann M. Biggs, state commissioner of health, show the type of influenza now prevalent to be considerably milder than that of 1918 and similar to outbreaks reported from continental countries and England. In the view of the state health department a convincing case has not yet been made out for the use of vaccines for the prevention of pneumonia. At the time of the last epidemic a thorough investigation of the efficacy of these vaccines was made by careful observation and analysis of the results of this method as used among 19,000 inmates of state institutions. This investigation indicated that little or no protection against pneumonia was offorded by the use of the vaccines.

### New York City

**Personal.**—Dr. Smith Ely Jelliffe has been elected president of the New York Psychiatric Society.

**Hospital Acquires Property.**—The New York Throat, Nose and Lung Hospital, which occupies the property at 229-233 East Fifty-Seventh Street, has purchased adjoining property which gives the institution control of an 80 foot frontage.

**Middleton Goldsmith Lecture.**—At a meeting of the New York Pathological Society, held, February 3, at the New York Academy of Medicine, the Middleton Goldsmith Lecture was delivered by Prof. Thomas Hunt Morgan, Columbia University, on "Some Possible Bearings of Genetics on Pathology."

**Rockefeller Institute to Establish Laboratory in Tropics.**—Dr. Frederick F. Russell and Dr. Richard M. Pearce sailed, February 2, for Rio de Janeiro by the Munson liner *Aeolus* to establish at São Paulo, with Dr. Carlos Chagas, Brazilian commissioner of health, a laboratory for the study of tropical diseases.

**Women Back Vivisection.**—Following an address by Dr. Simon Flexner, the New York City Federation of Women's Clubs, at its fifty-seventh convention, held February 3, defeated by overwhelming vote a resolution that dogs be exempted from scientific experimentation. Antivivisection representatives made a hard fight for the resolution.

**Physicians and Dentists Hold Joint Meeting.**—The stated meeting of the New York Academy of Medicine, February 2, was held in cooperation with the First District Dental Society. The subject was "A Survey of the Interrelationship between the Physician and the Dentist." The speakers were Dr. Llewellys F. Barker, Baltimore; Prof. Charles N. Johnson, Chicago; Prof. LeRoy M. S. Miner, Harvard University, and Dr. William Gilman Thompson.

**Child Welfare Administration Building Opened.**—The board of child welfare opened its new administration building at 145 Worth Street, January 30. The board is now caring for 25,000 children and 7,500 mothers at a cost to the city of $4,000,000. The board aims to keep children in the home, and finds that this sum represents a decided saving to the city over the method of caring for dependent children in institutions. In addition to the financial saving, the plan has virtually eliminated from the children's court the Society for the Prevention of Cruelty to Children, children being under the care of the board. In the new building will be dental clinics, physical examination rooms and an employment department. The administration work will be mainly concerned with carrying out the provisions of the child welfare bill.

## NORTH CAROLINA

**North Carolina Hospital Association.**—A meeting of the association, comprising about 250 physicians of the state, was held, January 31, at High Point.

**Personal.**—Dr. Crete N. Sisk, Athens, Ga., has been appointed county health officer of Forsyth, to succeed Dr. Alexander C. Bulla, who recently resigned to accept a similar position with the city of Raleigh and Wake County.——Dr. J. W. White, Wilksboro, has been appointed county health officer.

## OHIO

**Hospital News.**—Two new buildings will be erected at Longview Hospital for the Insane, Cincinnati, at a cost of $350,000.

**Epidemic of Smallpox.**—It is reported by the commissioner of health that more than 100 cases of smallpox have occurred in Stark County alone, but practically all the patients have the disease in a very mild form.

**Personal.**—Dr. Gilbert R. Mickelthwaits has resigned as city physician.——Dr. Chandler P. Robbins, Lieut.-Col., M. C., U. S. Army, assumed his duties as depot surgeon at Columbus Barracks recently.——Dr. Samuel Zielonka has resigned as instructor in surgery, University of Cincinnati College of Medicine.

**Academy of Medicine of Toledo and Lucas County.**—At a meeting of this academy, held, February 3, under the presidency of Dr. John F. Wright, Toledo, Dr. Wilfred P. Grenfell read a paper on "Medical Experiences on the Labrador Coast." The annual meeting and banquet of the academy was held, January 6, under the presidency of Dr. Louis A. Levison, Toledo, and the following officers elected for the year 1922: president, Dr. John F. Wright; vice president, Dr. Norris Gillette, and secretary, Dr. Edward J. McCormick.

**Physicians to Aid Social Service Work.**—At a meeting of the Clark County Medical Society, held, January 25, at Springfield, it was planned that all members of the society should cooperate with the Social Service Bureau in caring for the needy sick of the city. Medical treatment will be given in cases recommended by the Social Service Bureau; and when patients are unable to pay the fee, the physicians agree to perform the work at half price, the money to come from the bureau. Dr. Clarence S. Ramsey was chairman of the comittee that investigated the proposal of the bureau. Dr. Amos Richard Kent presided.

## OKLAHOMA

**Hospital News.**—The new Memorial Hospital, Bartlesville, erected at a cost of $250,000, is completed and will be opened in the near future.——The new Shawnee General Hospital was recently opened. The institution has 100 beds and is fitted with all modern improvements.

## PENNSYLVANIA

**Personal.**—Dr. Roland F. Wear has been appointed superintendent and chief of staff of the Berwick Hospital, Berwick.

### Philadelphia

**Mary Scott Newbold Lecture.**—The seventh Mary Scott Newbold lecture was delivered, February 1, by Dr. Hans Zinsser, New York City, on "Changes in Our Conceptions of Antigen-Antibody Reactions."

**Hospital News.**—The large rebuilding project which the Presbyterian Hospital was developing at the time of the beginning of the World War is now being resumed. The main building will be five stories high and will house a new laboratory, dispensary and social service department. Work on the building will be started this month.

**Visiting Nurses Report.**—The thirty-fifth annual meeting of the Visiting Nurses' Society of Philadelphia, February 1, was notable because it marked the first meeting in thirty-five years at which no appeal for funds was made. The reason for the absence of the financial appeal is the society's membership in the Welfare Federation, which made one campaign for funds for all its 126 member agencies last fall. The work of the society for 1921 was indicated in the president's report, read by Mrs. Thomas J. Dolan. It showed an increase of 10 per cent. over 1920. More than 23,000 patients were cared for in 1921, and more than 179,000 visits were made by the society's nurses.

**Society News.**—At the recent meeting of the Philadelphia Academy of Stomatology, T. D. Castro was elected president; Sterling W. Hewitt, vice president; James J. Nelson, treasurer, and John Ross, secretary.——At a meeting of the Philadelphia Clinical Association, held recently, the following officers were elected for the ensuing year: president, Dr. Mitchell P. Warmuth; first vice president, Dr. William E. Parke; second vice president, Dr. Isaac R. Strawbridge; treasurer, Dr. W. Hersey Thomas, and secretary, Dr. James F. Donnelly.——The Northern Medical Association, at its annual meeting, elected the following officers for the year 1922: president, Dr. John B. Mencke; vice president, Dr. Penn Gaskell Skillern; treasurer, Dr. John W. Millick, and secretary, Dr. Morris L. Fuchs.

## RHODE ISLAND

**Honor Oldest Alumnus.**—At the annual dinner of the Harvard Club of Rhode Island, held, January 23, at Providence, a message of congratulation was sent to honor Dr. Horatio R. Storer, Newport, aged 91, the oldest living graduate of the Medical School of Harvard University.

## TENNESSEE

**New Pediatric Society.**—A meeting of the physicians of Memphis was held last month for the purpose of organizing a society for the close study and observation of the special treatment of children. The society will meet monthly, and will be known as the Memphis Pediatric Society. Dr. Edward C. Mitchell was elected president of the organization.

## TEXAS

**Personal.**—Dr. John H. Florence, Houston, has been appointed state health officer to succeed Dr. Manton M. Carrick, who resigned recently.

**Physicians Purchase Sanatorium.**—Dr. Herbert F. Gammons, Dallas, in connection with Dr. Robert G. Homan and Miss Effie Grant, has purchased the Wiley Sanatorium for Tuberculosis, El Paso, which will in future be known as the Gammons Sanatorium, with Dr. H. F. Gammons as director.

## VIRGINIA

**Distinguished Service Medal for Physician.**—Dr. Hunter H. McGuire, Richmond, who served as a lieutenent colonel in the medical department during the World War, was presented with the distinguished service medal, at Fort Monroe, January 12, for service as commanding officer of a base hospital in France during the Argonne campaign.

## WISCONSIN

**Hospital News.**—A state maternity hospital, to accommodate fifty patients, was opened, February 1, by the Salvation Army, at Milwaukee.

**Prescription Books Called In.**—Prohibition Director Stone has called in the liquor prescription books of 100 Wisconsin physicians for examination.

## CANADA

**Lectures on Heredity.**—A series of five lectures on heredity was given in January at the University of Toronto by Prof. William Bateson, director of the John Innes Institution, Merton.

**University News.**—It has been announced that Lord Atholstan, proprietor of the Montreal *Star*, has offered the sum of $100,000 to the graduate or student of any recognized university who, within five years after date, is the first to

discover a medicinal treatment for the effective cure of cancer. The decision is to be left to the Royal College of Physicians and Surgeons, London, England.

**Endowment for Medical School.**—Under the terms of his will, the estate of the late Dr. Henry Meek, London, Ont., is left to Mrs. Meek during her lifetime. On her demise, the entire estate is to be set aside for the establishment of a laboratory for the benefit of the Victoria Hospital, and to further research in the medical department of the Western University, London. The plans for the establishment of the laboratory will be under the direction of a special board of three persons, namely, the chairman of the board of governors of the Western University, the chairman of the board of trustees of the Victoria Hospital, and the dean of the faculty of medicine of the Western University. The laboratory will be known as "The Hamilton King Meek Memorial Laboratory," in memory of their son. The board is to have authority and power to use any portion or all of the principal set aside for the laboratory for building or maintenance purposes, and to designate what portion shall be used for the buildings and also for the endowment fund. One half of the proceeds from the sale of the family residence is to be set aside as a fund for teaching obstetrics in the medical school of the Western University.

**Liquor Prescription News.**—Officials of the Ontario license board, and the executive of the Ontario Medical Association held an informal discussion at the Academy of Medicine, Toronto, February 3, for the purpose of endeavoring to straighten out matters relating to the issuance of liquor prescriptions by the medical profession. The medical profession was represented by Drs. J. F. Farley, Trenton, Ont., president of the Ontario Medical Association; George S. Young and T. C. Routley, Toronto, while Chairman James Hales, K.C., and Commissioner W. S. Dingman appeared for the board of license commissioners. The net result of the conference was that the physicians will consider and report back to government representatives their views on some form of cooperative disciplinary control to be exercised by a physicians' committee in conjunction with the license board. In response to certain representations put forward by the government representatives, they will also ascertain the views of their members on the advisability of lowering the maximum quantity of liquor obtainable on physicians' prescriptions. Through questionnaires, members will be asked their views as regards 16 ounce or 12 ounce limitation, and the establishment of an advisory committee.

**Hospital News.**—A deputation from St. Thomas, Ont., headed by Mayor C. E. Raven, waited on the Elgin County Council recently, and asked for a grant of $50,000 toward the proposed Elgin Memorial Hospital, which, it is estimated, will cost $200,000. The city has already granted $100,000 toward the project.——A new tuberculosis hospital was opened recently near the Medical School of Dalhousie University, Halifax. Dr. William Bruce Almon has been appointed medical director of the institution, and Drs. Edward V. Hogan and Henry K. Macdonald, consulting surgeons.——A pavilion for the accommodation and treatment of tuberculous patients has just been completed on the grounds of the Shaughnessy Hospital, B. C., which is operated by the department of soldiers' civil reestablishment of Canada. The building was erected at a cost of $12,400.——Plans will be prepared at once by the city architect for the new reception hospital at Toronto, Ont. The building will have its main entrance on Surrey Place. It will be five stories high and will contain 125 beds.——Hon. Dr. Beland, the new minister of soldiers' civil reestablishment in the federal government, Ottawa, has taken up the matter of aiding the soldier patients at the Muskoka Free Hospital for Consumptives, and will introduce new measures at the next parliamentary session. ——Toronto, Ont., is to have a Jewish General Hospital. The Lyndhurst Hospital building, on Yorkville Avenue, has been bought for this purpose, and in May it will be completely renovated. In July it will open its doors to fifty Jewish patients. The Jewish Daughters Society is the founder of the new hospital, and the purpose of the institution is to eliminate the mistakes and inconveniences experienced by non-English speaking Jewish patients in gentile hospitals. The building was purchased for $35,000, and an additional $12,000 will be spent on improvements.

## GENERAL

**Twenty-Five Year Health Survey.**—The National Research Council has announced that Detroit and New York City have been chosen for a health investigation, which may continue for a quarter of a century. Attention will be directed toward determining the influence of the air with its varying temperature, humidity and movement on the health of many classes of people.

**Bequests and Donations.**—The following bequests and donations have recently been announced:

Muhlenberg Hospital, Plainfield, Pa., $50,000, for the construction of an extension to the Nurses' Home, by George P. Mellick and John H. Stevens.

Pennsylvania Epileptic Hospital and Colony Farm, Oakbourne, Pa., $20,000, by the will of Cora Feltus.

Central Maine General Hospital, Lewiston, Me., $20,000, by Col. C. H. Osgood.

Hennepin County Sanatorium, Glen Lake, Minn., $11,508, from the sale of Christmas seals.

Hospital for Crippled Children, Columbus, Ohio, $8,000, by a Columbus resident.

Massachusetts School for the Blind, New Bedford, Mass., $3,000, by the will of Miss Sarah E. Seabury.

Morton Hospital, Taunton, Mass., $5,000; Massachusetts General Hospital, Boston, $10,000, to establish a free bed in memory of Judge Lowell, by the will of Mrs. Cornelia P. Lowell.

Home for Destitute Roman Catholic Children, St. Vincent's Orphan Society, St. Mary's Infant Asylum, St. Elizabeth's Hospital, Brighton, Mass.; Holy Ghost Hospital for Incurables, Cambridge, and the Boston Lying-In Hospital, each $1,000, by the will of James W. Dunphy.

Lutheran Hospital, Moline, Ill., $500, by the will of Charles O. Carlberg.

## LATIN AMERICA

**Personal.**—Dr. H. de Brito Belford Roxo has been appointed professor of clinical psychiatry in the University of Rio Janeiro.

**Smallpox in Chile.**—The smallpox situation in Chile became so serious that the 500-bed pesthouse at Santiago proved inadequate for the number of patients. The government had, therefore, to make an emergency appropriation of 300,000 pesos for the construction of barracks and 100,000 pesos for the care of patients.

**Tribute to a Cuban Physician.**—As a tribute to Dr. Diego Tamayo, secretary of public health during General Wood's regime, the Academia de Ciencias of Havana held a special session in his honor. Tamayo was instrumental in securing the necessary funds for the present building of the academy. To celebrate the occasion, Tamayo was made an emeritus member and his portrait was unveiled. Speeches were made by Drs. Torralbas, Le Roy, and de la Torre. In his speech, Tamayo called attention to the debt Cuba owes to General Wood's efforts.

**Chilean Hospitals.**—A new pavilion has been added to the Puerto Montt Hospital.——The municipal authorities of Osorno are taking steps to build a modern hospital in that town. The Chilean senate recently struck out an appropriation of 200,000 pesos for that purpose.——A commission composed of Drs. Avalos, Ferrer, Torres, Boonen y Vial, is trying to find out a proper location for the construction of an army hospital at Santiago. The chief of the army sanitary corps, Dr. Avalos, stated that there are already 200,000 pesos available for this purpose, which will be used in building two or three pavilions at first.

**Prizes Awarded at the Cuban Medical Congress.**—Our Havana exchanges relate that the prize for the best work on radiology of the heart was awarded to Dr. P. L. Fariñas; on general medicine, to Dr. O. Montoro; on legal medicine, to Dr. C. M. Pineiro, and on ophthalmology, to Dr. J. M. Penichet and to Dr. Juan Santos Fernández. The congress passed forty-five resolutions, one of them being an appeal to the authorities to appoint some members of the medical faculty to represent Cuba at the next conference on medical education held in the United States. Another resolution urged that steps be taken for the organization of an American conference on tropical diseases.

## FOREIGN

**British Orthopaedic Association.**—The annual meeting of the British Orthopaedic Association was held, December 2-3, at Liverpool, under the presidency of Sir Robert Jones.

**British Medical Association.**—The ninetieth annual meeting of the British Medical Association will be held, July 25-29, at Glasgow, under the presidency of Sir William Macewen, F.R.S.

**Cremation of Human Bodies.**—It is reported by the Cremation Society of England that 1,800 bodies were cremated in 1920, among them the bodies of Sir William Osler and Dr. Cecil Lyster.

**Academy of Medicine of Paris.**—At the annual meeting and election of officers of the Academy of Medicine, Paris,

M. Behal was elected president; M. Chauffard, vice president, and M. Sougues, secretary (reelected).

**Hunterian Lectures.**—A course of six Hunterian lectures on the "Facial Characteristics of Living Races of Mankind" was delivered during January at the Royal College of Surgeons, England, by Prof. Sir. Arthur Keith, conservator of the college museum.

**National Colonial Exhibition.**—At the exhibition to be held at Marseilles, France, in September, under the presidency of Dr. Paul Gouzien, president of the Superior Council of Health for the French Colonies, a public health congress will take place, September 11-17.

**Inauguration of Radium Institute at Naples.**—The new Instituto Fotoradioterapico connected with the large public hospital at Naples was recently inaugurated with much ceremony and a banquet. It is due to the initiative of Prof. R. Stanziale of the chair of dermatology and syphilis, and is the only institution of the kind in southern Italy.

**The Rat Campaign at Copenhagen.**—The *Nederlandsch Tidschrift* states that the authorities of Copenhagen have decreed that in March and April and again in September and October, rat poison shall be systematically distributed. During the other eight months of the year it is proposed to give a bounty for dead rats. It is expected that the campaign will cost for poisons and premiums up to 170,000 crowns a year.

**Research Work in the Serotherapy of Trypanosomiasis.**—Research work in this line will be undertaken through the Colonial Office of Great Britain, which is organizing an expedition for this purpose, the work to include both men and animals. The expedition will be in charge of Drs. Marshall and Basselo, of the Uganda Public Health Service, with two assistant physicians and two veterinarians, who plan to spend at least two years in Africa.

**Research on Hospital Abuses.**—The organized physicians, surgeons and specialists connected with the public hospitals in France have appealed to each one to compile data relative to hospital abuses, especially the crowding out of the indigent by the well-to-do, the remuneration of physicians engaged in charity and industrial accident work, and questions connected with pay patients, overcrowding, laboratories, etc. The secretary in charge of collection of the data is Professor Rocher of Bordeaux.

**The Souvenir Volume of the Centennial of the Académie de Médecine at Paris.**—All the historical and other addresses delivered at the centennial celebration in December have been collected in a special souvenir volume. This Livre d'Or du Centenaire is an octavo of 280 pages and is published by Masson et Cie, 120 St. Germain, Paris, for the Académie de Médecine. Some extra copies are offered for sale for 120 francs each, including the special medal struck off to commemorate the centennial, or 100 francs without the medal.

**Personal.**—Professor Ambard of Paris has been delivering a brief series of lectures in the Scandinavian countries. At Copenhagen he spoke at joint meetings of the societies for internal medicine, surgery and biology, his theme being kidney disease.——Professor Ehlers of Copenhagen has been given an honorary degree by the University of Paris.——Paul Strauss, senator and honorary member of the Académie de Médecine at Paris has been appointed minister of hygiene.——Professor Neuberg of Berlin has been called to Japan to aid in founding a biochemical institute.

**Health Insurance in Norway.**—A letter in the *Deutsche medizinische Wochenschrift* relates that the income limit for compulsory insurance against sickness has been recently raised by the authorities in Norway from 3,000 to 6,000 crowns. The insured person pays six tenths of the premium, the employer and the commune each one tenth, and the state two tenths. He can choose his physician, and the physicians are paid by the number of office consultations and visits. This insurance has been in vogue for ten years. Legislation is now being discussed to allow all with an income less than 6,000 crowns to share in the insurance whether they are employed or not, thus extending it to small farmers.

**International Medical Hydrology.**—An International Society of Medical Hydrology was founded recently in London, with a preliminary membership of seventy-one medical men, representing thirteen different countries. A representative in each country was appointed, the aim being to publish an international journal to contain the clinical and experimental work in each country bearing on the medical action and uses of waters and baths. The representative in this country is Dr. Guy Hinsdale of Hot Springs, Va. The representative in Austria is Dr. J. Fodor of Vienna; in Italy, Prof. L. Devoto of Milan, and in France, Dr. P. Ferreyrolles of La Bourboule and Paris. The latter is to be one of the two editors of the proposed journal. Dr. R. Fortescue Fox was elected president of the new society.

**Commencement Exercises of French Colonial Institute.**—The Institut de Médecine et de Pharmacie Coloniales was founded at Marseilles in 1899, and gives two graduate three month courses during the year, from January to June, besides other courses for undergraduates. The staff of instructors is large, most of them members of the Paris medical faculty. Professor Brumpt of Paris is the secretary general. This year thirty were given the colonial medicine diploma, including eight foreign physicians. Since the reorganization of the institute by Brouardel and Blanchard in 1902, 402 diplomas have been issued, including the 212 to foreign physicians. The authorities are constantly complaining of the inadequate number of physicians that are willing to take up work in the French colonies. It was stated that the Tchad region, with an area equal to that in France, had only two medical men at one time recently. Tuffier brought the same message back to the profession from his trip to the Far East. The *Presse Médicale* of Dec. 28, 1921, contains the details of the courses offered.

### Deaths in Other Countries

Dr. **Louis Colbourne,** formerly of Buenos Aires, died, January 7, in Kent, England, aged 72.——Major **Charles William Reilly,** R. A. M. C., died, December 31, in London.——Dr. **W. Sander,** a leading alienist of Berlin, aged 84.——Prof **E. Lefas** of the medical faculty at Asunción, Paraguay.——Prof. **M. Breitung** of Koburg, aged 70.——Dr. **A. Wagner** of Hamburg, aged 86.——Dr. **W. Classen** of Düsseldorf, aged 60.——Dr. **Oehme** of Dresden, at an advanced age.——Dr. **E. Böhni** of Stein, Switzerland, a pioneer in treatment of leg ulcers and tuberculous lesions of bones and joints.——Dr. **Moeller** of Brussels, former president of the Belgian Académie de Médecine.——Dr. **H. Kron,** a neurologist of Berlin, aged 74.

### CORRECTION

**Pneumotyphoid.**—In the paper by Dr. H. C. Herrman, THE JOURNAL, January 21, the title should be "A Case of True 'Pneumotyphoid'" instead of "Pneumotyphus."

## *Government Services*

### Conference on Pay of Officers

Terms of legislation relating to the pay of army, navy and U. S. Public Health officers in the government have recently been the subject of numerous conferences between members of Congress and representatives of the army, navy and other branches of the government. The present law which granted increases in pay to all such officers, including medical officers, expires by its own limitation, June 30, 1922. It is generally recognized that Congress will reduce the pay of such officers in new legislation which necessarily must be passed before June 30, 1922. Representative John C. McKenzie, ranking member of the Committee on Military Affairs, has taken the initiative in this legislation. The McKenzie plan for regulating compensation by length of service has been retained in principle in the revised draft of the bill which will soon be introduced in Congress. The six pay periods each are divided into three rates of pay each, so that there may be, to that extent, progressive compensation, with a limitation on the amount any officers may draw, despite the length of service, and checks on increase of pay regardless of rank are provided. At the same time, there are provisions that will relieve an officer seffering from stagnation in promotion from the blighting effects of an unchanging rate of compensation. Moreover, there are provisions for allowances in the way of subsistence or rations and for quarters, with a sliding scale to provide for dependents.

The revised measure provides for six so-called pay periods, the base pay of each of which is: first, $1,500; second, $2,000; third, $2,400; fourth, $3,000; fifth, $3,500, and sixth, $4,000.

Instead of fixing pay solely by length of service, it is arranged that pay shall be regulated by a combination of service and grade.

An officer, on his orginal appointment to the service, will receive, as a second lieutenant or the corresponding grade in the other services, $1,500, which is his base pay until he has served five years. Then, if

not promoted to first lieutenant or corresponding grade by that time, he will receive the pay of first lieutenant, $2,000.

A first lieutenant, if he is promoted to that grade before three years' service as second lieutenant, gets the pay of a second lieutenant for the first three years, regardless of his promotion. From three to ten years as a first lieutenant, he will receive $2,000; if he is ten years in service before reaching his captaincy, he will get the pay of captain, $2,400. If a first lieutenant is promoted to captain in less than seven years, he will get the pay of first lieutenant for that period, or $2,000.

This system of regulating pay by a combination of length of service and grade is carried upwardly to and including the grade of colonel. A colonel of less than twenty-six years' service will draw $3,500, which is the pay of the next lower grade; service of more than twenty-six years makes the minimum pay of colonel $4,000, with a maximum limitation on a colonel's pay placed at $5,750.

The pay of general officers, according to the bill, is fixed at $7,000 for a brigadier general, $8,500 for a major general and $13,500 for a general.

An additional feature is a provision for increase of pay by 5 per cent. for every three years of service, in lieu of the present longevity pay of 10 per cent. for every five years of service. The maximum increase for service is placed at 50 per cent., with an additional limitation in the case of colonels of thirty years' service placed at $5,750, instead of $6,000, as at present.

### Limitation in Number of Officers

Limitation of the number of officers in the army to 13,000 is proposed in a bill introduced in the Senate by Senator Wadsworth, chairman of the Committee on Military Affairs. The measure as prepared by General Pershing, chief of staff, provides for the appointment of a "plucking" board, whose duty shall be to select officers for unlimited retirement with the approval of the President. The purpose of the bill is economy. The commissioned personnel of the medical department of the army is fixed as follows:

| | |
|---|---|
| Number of officers of the Medical Corps | 1,053 |
| Number of officers of the Dental Corps | 1,077 |
| Number of officers of Veterinary Corps | 144 |
| Number of officers Medical Administrative Corps | 81 |
| Total officers Medical Department | 2,355 |

Although promotions are restricted in other branches of the service, the bill specifically states that there shall be no change in the present regulations dealing with promotions in the Medical Corps. At the office of Surgeon-General Ireland of the army, information was obtained to the effect that the actual reduction of officers, should the measure become a law, would amount to about ninety. Prohibition of appointments of additional officers in the Medical Corps to exceed the number named in the bill is also included, as well as a clause that prevents the increasing of the number of commissioned personnel in the Medical Corps regardless of an increase in the total strength of the entire army. The present National Defense Act provides about 17,000 officers for the military establishment. The bill, therefore, will mean a reduction, all told, of 4,000 officers.

### Appropriation for Veterans' Bureau

In the independent offices appropriation bill, $377,474,622 is the sum included to cover the operation of the U. S. Veterans' Bureau passed by the House of Representatives, January 31. The measure was passed as originally presented by a subcommittee of the House Committee on Appropriations headed by Representative Wood of Indiana. This appropriation includes all expense for hospitalization, medical service and surgical service performed by this bureau for the World War veterans.

### Neuropsychiatric Conference for Veterans' Bureau

Leading neuropsychiatric specialists of the United States will meet in a special conference in Washington called by Director Charles R. Forbes, director of the U. S. Veterans' Bureau, February 10. The question of mental diseases among the 9,000 ex-service men now in government hospitals will be discussed, including hospitalization, the necessity of additional hospital facilities and the training of the neuropsychiatric personnel. Colonel Forbes has already recommended to the Hospitalization Committee of the government that a school for the training of neuropsychiatric personnel, including physicians, nurses and reconstruction agents, be established at St. Elizabeth's Hospital, Washington, and plans for this course of instruction will also be presented to the conference for discussion. The chairman of the conference is Dr. William A. White of Washington, D. C.

# *Foreign Letters*

## LONDON

*(From Our Regular Correspondent)*

Jan. 29, 1922.

### The Influenza Epidemic

The epidemic of influenza, reported in a previous letter (THE JOURNAL, Jan. 21, 1922, p. 205), continues to spread and is now widely prevalent. It is of a mild and new type, though an outbreak of similar cases on a much smaller scale was observed in April of last year. Dizziness is first noticed, followed by loss of appetite and palpitation of the heart. Faint pinkish yellow papules appear on the shoulders and arms, and redness and puffiness of the face are often noticed. There is slight sore throat with glandular enlargement and cough, sometimes with bronchitis, but the bronchopneumonia, which proved so fatal in the last great epidemic, is absent. Gastric symptoms are common. The illness usually lasts only about a week but there is a tendency to relapse. Dr. A. Shadwell, the epidemiologist and author of the article on influenza in the Encyclopedia Britannica, in a letter to the *Times* points out that the great mystery of the pandemic diseases is the marked alternation of latency and activity, which is of the most irregular character and cannot be referred to any conditions, whether geographic, meteorologic or social, with which we are acquainted. "I do not refer to dissemination," says Dr. Shadwell, "about which much has been learned, but to the appearance and disappearance of a virulent type of disease. This applies to cholera and plague as well as to influenza. Why do these things start up from a state of quiescence at irregular intervals in an aggressive form and take the field, so to speak, against mankind? Why, after a campaign of varying intensity and duration, do they die away and in some cases disappear altogether? It is established that they spread mainly by human and animal intercourse, but why do they start? In the case of cholera, von Pettenkofer long ago suggested a connection with the level of the subsoil water, and Mr. Baldwin Latham made out a correspondence between plague and vapor tension in India. But such tentative conjectures do not carry us very far, and neither of these diseases concerns the Western world as influenza does. They are much more easily controlled. But influenza seems to increase its hold, and remains as great a mystery as when it got the name, which is in itself a confession of ignorance."

From the epidemiologic standpoint the epidemic is of great interest. Dr. J. Brownlee, director of statistics of the Medical Research Council, worked out a periodicity curve which he published in 1919 in the *Lancet*. He showed that influenza practically does not exist in the summer and autumn, the maximum of all epidemics falling between January and May. He found that minor epidemics recurred at intervals of thirty-three weeks, and that when an epidemic fell due in autumn it failed to materialize. Dr. C. O. Stalybrass has supported this theory of recurrence for minor epidemics, adding that major ones generally appear at intervals of ten years. According to Brownlee's theory, a minor epidemic is due in February this year. As the present epidemic does not appear to have yet reached its maximum, his prediction is fairly well verified. Since Pfeiffer's bacillus has been dethroned from its position as the specific cause, the question cannot be answered whether the various epidemics represent one or several diseases. The present epidemic began in November, notably in the western part of Nottinghamshire, and spread to the Potteries. In these areas it has nearly ceased. London was attacked about the end of November, but not severely until mid-December. A duration of six or

seven weeks has been the experience in the areas visited. The last severe epidemic in this country was in 1918-1919, when the deaths in London in the worst week amounted to 2,458. In the present epidemic the deaths ascribed to the disease in London last week were 551. The usual symptoms are headache, pain in the back and legs, congestion of the throat and some bronchial catarrh. Gastric symptoms and spotty rashes on the face also occur. The disease is most severe in very young children and persons over 65. This is in curious contrast to the last severe epidemic, which proved most fatal to those in the prime of life. The ministry of health is supplying vaccines to physicians. They do not appear to prevent attacks, but it is claimed that their timely use gives material security against dangerous complications, particularly pneumonia. As the protection takes ten days to develop, the vaccines are held to be of greatest use in those areas in which influenza has not yet developed. The ministry of health has arranged for meetings of an influenza committee and also for the admission to the fever hospitals of cases of influenzal pneumonia. As accommodation is limited, cases are to be selected for admission by health officers in conjunction with the patient's physician.

### Color Blindness in Seamen

Dr. Edridge-Green, special examiner and adviser to the board of trade on color vision and eyesight, has made a report on the standard of rejection for color blindness in seamen. He states that there is no universally recognized standard since the wool test became obsolete. This test allowed 50 per cent. of dangerously color blind to pass, and of those rejected 50 per cent. were not dangerously color blind. The nautical advisers of the board of trade agree that any one who can distinguish between red, green and white lights at a distance of a mile has sufficient perception for purposes of navigation. About 25 per cent. of men have diminished color perception. As these cases form a complete series from total color blindness to supernormal color perception, the consideration is where the dividing line should be drawn. About 5 per cent. of men fail to distinguish between the red, green and white lights of a properly constructed lantern, or the actual lights themselves, at a distance of a mile. With the spectrometer they can be ranged in three definite classes—the dichromic, who see only two colors in the spectrum, red and violet with a neutral division between them, the trichromic, who see only three colors in the spectrum, red, green and violet, and who designate the yellow as red-green, and those who have shortening of the red end of the spectrum. The tetrachromic, who see four colors, red, yellow, green and violet, though in continual difficulty about blue and green, have a definite yellow sensation. Repeated and extensive examinations with actual lights, in some cases for more than five hours, have convinced Dr. Edridge-Green that for practical purposes the tetrachromic are not dangerous. The possession of a definite yellow sensation is therefore the deciding point for passing as practically normal. The lantern is therefore an efficient test, and cases of acquired color blindness, for instance, those with central color scotoma, are also excluded as well as those due to defective light perception, such as shortening of the red end of the spectrum.

### The Medical Research Council

The one thing done by the National Insurance Act which is not open to criticism is the establishment of the National Research Council. The endowment of research in this country, whether by private benefactors or by the government, is very inadequate. Hence this establishment of medical research on a considerable scale has been a valuable step. This is well shown in the references to the work of the council which have been made from time to time in THE JOURNAL. The annual report for the year ending Sept. 30, 1921, has just been issued. The grant received for the year was $650,000. This is spent first in maintaining the National Institute for Medical Research at Hampstead, the central bureau. During the year, investigations have been made, among many others, on the bacteriology of typhoid fever and tuberculosis, the physics and biochemistry of ventilation, the standardization of diphtheria antitoxin, the serum treatment of tetanus, and the routine testing of arsphenamin. The work on ventilation was done by Capt. S. R. Douglas, director of the bacteriologic department, in conjunction with Leonard Hill. They found that, in the air of a room massively infected with microbes, by spraying with emulsions, humidity made little difference in the rate at which the microbes settled, but in moist air they settled more rapidly on cold than on warm surfaces. Dry air passed over microbes growing on agar carried away fewer than most air; dust in the air also increased the number carried away. Ventilation enormously increased the rate at which microbes were carried away from an infected room, and even keeping the air in motion with a fan had the same effect. Saturation of the air with moisture increased the result of movement. Some remarkable results have been obtained from a study of local heating of the body by Hill in conjunction with others. When the hands are placed as far as the wrists in water at from 5 to 10 C. (41 to 50 F.) the whole body loses as much heat as is normally produced in the resting state. Conversely, when the hands are immersed in water at 44 C. (111.2 F.) the body gains as much heat as it produces normally. As local heating is so efficacious, it may be found to be the best method of distributing heat in workshops, each worker having an electrical appliance beneath his clothes and under his own control while cool air freely circulates. The council also provides for research work carried on by the clinical units of three London hospitals.

### Death of the Oldest Physician in the Country

Dr. William Gibson, the oldest physician in the United Kingdom, has died at Campbeltown, Argyllshire, at the age of 98 years. He qualified as M.D. at the University of Edinburgh in 1858, and held various public appointments at Campbeltown for sixty-five years. The remarkable fact is that he retired from practice only fourteen months ago. He had wonderful vitality, and even as a nonogenarian pursued his professional routine with vigor and freshness of mind. He often showed how up to date he was in matters of medical knowledge and in sanitary science in his work as health officer of the town for over half a century. His tall, spare figure moving about the town will be missed for many a day. Up to the end he worked on foot, often saying that the exercise of walking was a valuable precaution against the infirmities of advancing years. His periodic reports to the town council on the health of the burgh were models of clarity and conciseness. Even recently his advice on a new housing scheme, given at an evening meeting, showed a thorough grasp of the question. "The old doctor," as he was familiarly called, took no little pride in the distinction of his great age and prolonged service, and with great reluctance resigned his appointments. At 95 a short illness led to the decision to retire, and he sent in his resignations. But before they could be dealt with he recovered, and feeling his vigor unimpaired, he asked leave to withdraw them, which was readily given. At last, in 1920, though suffering from no disease, he had to give up; the machine was running down. To the end he was possessed of all his faculties except for a certain degree of deafness. Apart from his busy professional life, his hobby was gardening. He not only engaged in the manual work but reveled in it, regarding it also as a means of pre-

serving his physical fitness. At the annual flower show he was a keen competitor. His wife died twelve years ago, and of a family of seven children only one survives, his youngest daughter.

### Panel Physicians' Records

As reported in a previous letter, the issue of "record cards" to panel physicians by the ministry of health was not a wise step. It meant only a waste of time which could be better devoted to the treatment of the patients. This is well shown in a letter sent by the panel medical committee of Glostershire to the ministry of health, in which the most important points are these:

So far as the interests of the patients are concerned, a record would naturally be kept by the medical man of all cases of importance; but the results obtained by Sir James Mackenzie's St. Andrew's Institute of Clinical Research show conclusively that the record of early histories of common ailments does not assist in the ultimate diagnosis, prognosis, and treatment of individual conditions of disease. The record of attendances of patients, or of visits to them at their homes, is of no statistical value; nor is it of value in checking the medical man as to the care, or otherwise, he bestows on his patients. The patient is amply safeguarded in that respect by his ability to transfer his patronage to another physician if dissatisfied. On the other hand, it is a hindrance to a busy and anxious practitioner in the prosecution of his duties. Nor can a record of the ailments of, or of the medicines prescribed for, patients be of the slightest statistical, pathologic or therapeutic value in the vast majority of cases. Moreover, if ever these millions of record cards should be collected for statistical valuation, the work and difficulties of tabulation would be so enormous as to render the cost of the undertaking out of all proportion to the benefits, if any.

In a letter to the *Times*, Sir James Mackenzie states that the reference to St. Andrew's Institute requires elucidation. About two years ago, the late Sir Robert Morant, the chief official appointed by the government for administration of the insurance act, asked Sir James Mackenzie to be chairman of a committee to draw up a form of record for panel physicians. Sir James pointed out that the vast majority of such records would deal with patients who presented no gross signs of disease, and that medical knowledge had not advanced so far as to enable any one to make a reliable record of conditions other than gross diseases. The records would not be of the slightest value. He further stated that the matter of recording the early signs of disease was being worked on at St. Andrew's and that if the subject was left to the institute, it would endeavor to devise a reliable system. Unhappily, Sir Robert Morant died. The ministry of health then appointed a committee of its own to draw up the form of record now used by the panel physicians.

## PARIS

*(From Our Regular Correspondent)*

Jan. 13, 1922.

### Professor Tuffier's Impressions of Union Medical College, Peking, China

A few months ago, I mentioned the fact that Dr. Tuffier, professor of clinical surgery of the Faculté de médecine of Paris, had been invited by the Commission of the Rockefeller Institute to assist in the dedication of the Union Medical College of Peking, to give, on this occasion, several clinical lectures and to perform several operations (THE JOURNAL, Sept. 17, 1921, p. 952). Since returning to Paris, Professor Tuffier has given the Academy of Medicine an account of his experiences. Union Medical College, as it stands, he believes, is destined to reflect great credit on the United States, not only in China but throughout the Far East, from Java to Vladivostok. In fact, it constitutes another mighty factor in the creation of a sphere of influence in China on the part of the United States, which, at the present time, is so prominent, so fruitful and so eminently desirable; and, at the same time, it is a philanthropic movement of a very high order. It goes without saying that the parallel that he draws between the Union Medical College and the French institutions in China is not in favor of the latter. The hospitals that we have out there are provided with a restricted surgical equipment—quite inadequate, in fact. Some of these hospitals are poor and out of date, having scarcely ordinary facilities. In French Indo-China, which is the richest of our colonies, the situation is, fortunately, more favorable; particularly at Saigon, the capital of Cochin-China, where the Pasteur Institute, under the direction of Drs. Yersin and Noël Bernard, manifests marked activity in the study of infectious diseases, which are so frequent and of so grave a type in Indo-China.

### The Alienist and the Academy of Medicine

In spite of the protests mentioned by me in a previous letter (THE JOURNAL, Jan. 21, 1922, p. 207), the Academy of Medicine has not elected an alienist in place of the late Professor Dupré. The Informateur des aliénistes et des neurologistes remarks, in this connection, that it is the first time, since the foundation of the academy, that the section on hygiene and legal medicine has not contained authorized representatives of medicolegal psychiatry. This condition of affairs is, this journal thinks, especially regrettable in view of the fact that the problems bearing on the social service to be rendered psychopaths, on mental hygiene in general and the moral responsibility of criminals, and kindred topics, are acquiring ever greater sociologic importance. The Academy of Medicine has thus broken a well established tradition; for, since its very foundation, it has always counted among its membership one or more alienists, the first among whom were Pinel and Esquirol, who were succeeded by Falret, Baillarger, Luys, Ball and Ballet, and finally by Magnan and Dupré.

### Physical Education in Relation to Military Service

The minister of war has decided to take advantage of the operations of the exemption boards in connection with the examining of the class of 1922, to determine to what extent the physical training that the young men examined may have received in civilian life influences the physical effectiveness of the contingent. Up to the present time, during the course of the examinations conducted by the exemption boards, aside from information in regard to height, weight and chest measurement, notes have been taken on certain indications to show whether candidates are adapted or not to various branches of the service, with a view to assigning them to the services for which they are best fitted. Hereafter, in order to have an exact record of the amount of physical training that recruits have received, they will be questioned individually by the recruiting officers to ascertain whether they have had any systematic physical training and whether they have participated in any forms of sport. The statistical findings secured in this manner will make it possible to compare the physical development of those who have had previous physical education with that of those who have not had such training.

### Gratuitous Vaccination Against Typhoid

The question of vaccination against typhoid, as a measure to be adopted by the civilian population, having come, a few months ago, before the Academy of Medicine, the committee that was appointed to study the problem reached the conclusion that such vaccination should be recommended to the

general public on every occasion but that the time had not yet come to make it compulsory. However, in order to facilitate the introduction of typhoid vaccination and to establish agencies favoring it, the administrative council of the Assistance publique has recently opened four centers where vaccination against typhoid may be secured gratuitously. These centers are located in the Saint-Antoine, Cochin, Lariboisière and Trousseau hospitals, the latter being more particularly reserved for children.

### The Use of Thyroid Preparations by Midwives

In a previous letter (The Journal, Nov. 26, 1921, p. 1749), I mentioned the resolutions of the Sociétés d'obstétrique et de gynécologie of Paris and Bordeaux, demanding that midwives should be deprived of the right of prescribing preparations of the pituitary gland and of the privilege of securing such for themselves. Indeed, the societies consider that preparations of the hypophysis, irrespective of the form, should be regarded as a dangerous medicament, and should, on that account, be placed on the list of substances not deliverable without a medical prescription. It may well be asked whether the same considerations should not be applied to thyroid preparations. In this connection, a copy of a circular letter has just been delivered to me which was sent out by manufacturers of "pharmaceutic specialties" to all the registered midwives of France, offering them, among other products, a particular brand of thyroid preparation at a liberal discount (30 per cent.). The overshrewd manufacturer of the products thus tempts midwives to buy his thyroid preparation with a view to selling it to their clients at a profit. By acting in this manner, midwives not only are lending themselves to the illegal practice of medicine (or pharmacy), but are also exposing their unfortunate patients to serious risks. Dr. E. Coulaud publishes in the most recent number of the *Annales de médecine* an interesting article on thyroid organotherapy in relation to tuberculosis, in which he shows that pulmonary tuberculosis in process of evolution is unfavorably influenced by thyroidotherapy. From the researches of Pirquet, we know that in the tuberculous the diminution in the sensibility to tuberculin coincides in most cases with a parallel decrease in immunity. We may say, then, that pregnancy corresponds clinically to a critical phase in the evolution of tuberculosis. Moreover, the same thing is true of the menstrual periods and of the menopause. It will be seen from this what serious accidents may result from thyroid medication as dispensed by midwives.

According to Coulaud, thyroid organotherapy should be regarded as positively contraindicated during the evolution of tuberculosis, and even in the case of nontuberculous subjects it should not be used otherwise than with great caution. It should always be borne in mind that it requires a careful surveillance of the respiratory apparatus.

### Recent Vital Statistics of France

The minister of labor recently published the vital statistics for France for the first six months of 1921. They are here tabulated, along with the corresponding items for the first half of 1920:

| | 1920 | 1921 |
|---|---|---|
| Births (living children) | 424,668 | 421,180 |
| Stillbirths | 19,823 | 19,874 |
| Deaths | 356,728 | 348,329 |
| Marriages | 333,242 | 238,185 |
| Divorces | 12,268 | 15,567 |

The births have decreased by 3,488, and the deaths by 8,399. The population has increased by 72,851. The number of marriages contracted has diminished considerably, there having been almost 100,000 fewer marriages in 1921 than in 1920.

## BUENOS AIRES

*(From Our Regular Correspondent)*

Jan. 1, 1922.

### Smallpox

The smallpox foci which developed recently in the province of Cordoba assumed a rather serious aspect. The cases were especially numerous in the city of Cordoba. The provincial public health authorities had to take energetic measures to cope with the disease. The people offered some resistance to vaccination and some cases were not reported. On the other hand, the public health authorities were blamed for concealing the importance of the epidemic in order not to discourage the summer visitors who go in large numbers, in this season, to the mountain resorts of the province. The measures applied, isolation, disinfection, vaccination, have brought about a decrease of the outbreak. The disease was conveyed from Cordoba to Rosario de Santa Fé, where several cases occurred. The disease was kept in check by the wise measures taken by the public assistance and the national department of public health, which sent vaccine and public vaccinators.

### Maternity Department for Tuberculous Patients

December 18, there was inaugurated at the Hospital Vicente López y Planes a maternity department for tuberculous patients, presented by Miss Victoria Aguirre. This service is well installed in a building erected on some land belonging to the Charity Society.

### Antituberculosis Campaign

In accordance with the resolution adopted at the recent antituberculosis conference, the authorities of the province of Buenos Aires have decided to take measures for the construction of a tuberculosis sanatorium at Sierra de la Ventana. A commission was appointed to choose the location and submit plans for the institution. Its members are Drs. Cabred (president), Masés, Sempé, Alsina Cometto, Valentini, Grau, Cabral, Roth (engineer) and Restagno (secretary). It is to be regretted that at Rosario the Argentine League Against Tuberculosis had to close its sanatorium at Saenz Peña, as no funds were available for its support.

### Typhus Fever

The endemic foci of typhus fever near the mountains of Salta and Jujuy, while small, have been persistent and scattered, and have caused the national department of public health to conduct a permanent campaign against the disease. The number of cases has decreased 50 per cent. Sanitary stations and disinfecting offices have been put in operation, together with hot and cold baths, barber shops, ovens, steam disinfectors, etc. New clothing is also given to the patients. ——There has been reported at Olavarria the death of a soldier from typhus fever. As the diagnosis has not been confirmed and so far no cases of the disease have been reported in the province of Buenos Aires, it will be necessary to receive further data on the matter.

### Prevention of Orchitis Due to Mumps

No result has been obtained in the prevention of orchitis associated with mumps from the injections of diphtheria antitoxin, as announced by Dr. Rosso, or from peptone injections, by Drs. Vaccarezza and Vera.

### Antigangrene Serum

In the national departmtnt of public health, Dr. A. Sordelli has begun to manufacture the antigangrene serum, thus far manufactured by the Pasteur Institute of Paris.

### Personal

On the occasion of the retirement of Dr. J. B. Señoráns as professor of toxicology, a tribute was rendered him in the

school of medicine. It has been recalled that he was the first Argentinian to give lessons in experimental physiology, in 1885, on his return from a three-year trip to Europe.—— Dr. Hector de Cusatis has been appointed secretary of public assistance of Buenos Aires.—— Professor Chutro has just given a series of conferences at Chile and has been invited to give another series at Montevideo.

## BUDAPEST

*(From Our Regular Correspondent)*

Jan. 12, 1922.

### Precautions Against Cholera

On account of the prevalence of cholera in Russia and in some parts of Ukraine, the president of the medical council has laid down regulations, with a view to preventing the importation of the disease into Hungary. Every person who comes from a place infected with cholera and presents possible symptoms of the disease shall, on arrival at the Hungarian frontier, be detained at the railway station by the officer appointed for the purpose and shall be isolated until seen by a medical man. If the case is then considered not to be one of cholera, the person shall be allowed to continue his journey; but if the case is one of cholera, the commissary, acting in concert with the municipal authority, shall convey the patient to some place where, in the opinion of the medical man, isolation may be carried out under favorable conditions for the patient and for the prevention of infection. The prefect will also send a representative or a specially appointed medical man, who will take all the steps that are necessary. Similarly, any person coming from a place infected with cholera, and presenting symptoms, shall be isolated in a compartment of the train on which he is traveling. All railway servants are bound to act in accordance with this regulation. When the train reaches a station where a commissary resides, the patient shall be isolated. The carriages which have been occupied by persons suffering from cholera shall be emptied and disinfected. The bringing into Hungary of dirty linen and soiled clothing or bedding from infected districts is forbidden by law unless brought as luggage. When lodgings are taken by persons who either come direct from infected places or have left such places within the preceding eight days, the householder shall, within twenty-four hours of their arrival, report the fact to the police medical station. Every case of illness suspected to be cholera shall be immediately reported at the station. Every person suffering from an illness which is either recognized or suspected to be cholera must be immediately isolated, and all measures of prevention carried out with respect both to the patient and to those who have been associated with him.

### Sanitation in the Hungarian Railways

At a recent meeting of the sanitary board of state railways, the executive officer was instructed to draw up certain rules and regulations regarding car sanitation, these to be considered in conference with various railway officials and reported on at the next regular meeting of the board. In carrying out its inquiry, four points are emphasized by the sanitary board; namely, (1) a sufficient amount of fresh air properly distributed; (2) cleanliness of the car and its contents, including closets; (3) the proper heating of the car, and (4) overcrowding. The board also inquires whether the foregoing points have received sufficient consideration from the private companies owning railways in Hungary, and the question is asked whether the board shall undertake to secure better sanitary conditions by formulating certain regulations. Circular letters have been sent out to a number of leading medical men, and the character of the replies will influence the board in its decision.

### The Antivivisection Movement in Roumania

In Bucharest, the opponents of physiologic research are endeavoring to revive the old argument that vivisection is useless for the advancement of medical science and may even be the cause of disastrous errors. Forty or fifty men have formed a little society for the propagation of these views, the members including several persons well known in society. It has not yet, however, made much progress, and at the first meeting held recently in the city, the attendance was small.

### Distribution of Quinin in the South Balkan States

A recent Bucharest medical gazette contains a report of the sale and distribution of quinin in Albania and Montenegro as a prophylactic against malarial fever. The chief medical superintendent in Albania accepts the principle that quinin should not be distributed at public expense save in charitable dispensaries unless this measure is necessary to combat a severe epidemic of malaria. From past experience, it is calculated that every hundred thousand persons use from 150 to 200 pounds (68 to 90 kg.). As regards the distributing agency, he desires the hearty cooperation of every official. All touring officers should receive a supply for distribution; but for systematic distribution during a severe epidemic a nonofficial agency must necessarily be utilized, and in this matter the district boards are primarily responsible. Instructions are given for carrying out this systematic distribution of quinin. It is considered that, except in the case of a severe epidemic, the best method of making quinin readily acceptable is by the extension of the money unit packet system. The medical superintendent approved the commissioner's proposal to increase the amount of quinin sold for 5 cents from 0.4 to 0.5 gm. (6 to 8 grains). The establishment of additional agencies for the sale of these packets is under consideration, and arrangements have been made for the experimental issue of the drug in tablet form, three tablets of 0.2 gm. each being contained in a packet. It is quite possible that the larger the sales are, the greater the loss to the government will be, as it is not yet certain that 0.5 gm. can be sold profitably for 5 cents. But, whatever the loss the government is willing, indeed eager, to incur it, in the effort to encourage the use of the prophylactic.

## BERLIN

*(From Our Regular Correspondent)*

Jan. 6, 1922.

### Protection to Posterity in Relation to Social Politics

At a recent meeting of the Berlin Society for Public Health Culture, Prof. Dr. H. Poll, biologist, raised the question as to whether, with the means hitherto employed in the field of personal and social hygiene for the strengthening of the individual and the improvement of environmental conditions, posterity is likely to derive like adequate benefit. Modern biology teaches as an irrefutable principle that the condition of every living organism is the resultant product of the rudimentary germ and of outside or external influences. In the past, the representatives of social hygiene have based their methods and conceptions on Lamarckian ideas of the heredity of acquired characters, assuming that strong, healthy persons will have strong, healthy offspring. However, the assumption that influences that affect the body of a given individual are of a hereditary nature is not proven. Nevertheless, a great quantity of striking proofs have been brought by horticulturists and animal breeders that by the process of careful selection the character of the stock of the different varieties of plants and animals can be permanently improved; especially if the laws of heredity as affecting plants and animals, such as have been discovered and expounded by modern scientific investigators, are carefully observed. For-

tified with this knowledge, it would seem possible to combat the threatening signs of degeneration by applying the principles of hygiene in the widest sense to the genotype or type specimen. For that purpose, two things are necessary. We must begin to work out methods by which we can recognize those who possess good characteristics, and also inquire into the laws that govern the hereditary transmission of these characteristics. Furthermore, we must find ways and means of increasing the number of persons closely resembling the genotype who are fit to be the progenitors of the human race. If by a process of education it should prove possible to develop a sense of the responsibility of the individual toward the people as a whole, so that public health as the highest and most valuable possession of the nation might be protected against the destructive attacks of individuals; if physicians should be able to fix in the public mind the conviction that it is a crime to bring sick children into the world, then eugenic ordinances and laws that today are looked on as baleful interferences with personal freedom would come to be accepted as a matter of course. On the other hand, every means must be employed to relieve parents of a part of the burden of bringing up large families of children. A special form of insurance for parents, special tax exemptions; in fact, a general preferential treatment of large families of children, viewed from the standpoint of eugenic quality and not merely from the numerical standpoint, should be worked out. During the course of the discussion that followed the lecture, the correctness of the ideas advanced was recognized on every hand, but the sentiment prevailed that the carrying out of such a plan would be difficult or well nigh impossible.

### Financial Straits of German Students

In the present struggles of the German students, an improvement in the economic conditions on which a healthy life existence depends plays the most important part. Writing in the *Deutsche medizinische Wochenschrift*, G. Timner calls attention to the wretched condition into which our student body is sinking more and more. It is true that statistics on health conditions among university students are very unfavorably affected by the fact that a considerable portion of them are ex-service men. The largest part of the needy students take their midday meal in the university kitchens. What they get must, in the nature of the case, be entirely inadequate. The writer mentions as an example an average university that is comparatively well situated (namely, Marburg), and gives an estimate of the usual food allowances received by the students, during the summer of 1921, for the price of 3 marks. (Since that time the same meal has advanced considerably in price.) The calory value of this midday meal was 773. As the daily nutritional needs of an adult engaged in light employment, and leading, in the main, a sedentary life, amount to from 2,300 to 2,500 calories, the midday meal furnished scarcely a third of the requisite amount of food. And if this food allowance is too small for the preservation of a body that is intact, how much more unfortunate is the situation when students whose health is already undermined receive no more than this. Several thousand of our students have become a prey of tuberculosis, in which condition good wholesome food is the most important therapeutic factor. In Marburg, last semester, 40 per cent. of the students who took their midday meal in the university kitchens were suffering from some pathologic condition, 11 per cent. from severe war injuries, 7 per cent. from grave nervous affections, 7 per cent. from heart disease, and 5 per cent. from lung trouble. The hygienic conditions in student quarters are often unendurable. The students are living, to a great extent, in poorly lighted attic rooms. Many students lack the means of purchasing fuel for the winter, so that they frequently have to study in unheated rooms.

## Marriages

SAMUEL AGEE FUQUA, Lieut., M. C., U. S. Naval Reserve Force, Chicago, to Miss Geraldine McElroy of Rensselaer, Mo., January 21.

LESLIE LENTON BLAIR to Miss Elizabeth Montgomery Anderson, both of Marietta, Ga., January 11.

GIDEON TIMBERLAKE, Baltimore, to Miss Sallie Virginia Helms, at Washington, D. C., January 19.

GUY LIVINGSTON HOWE, Brighton, N. Y., to Miss Kathryn Driver at Syracuse, N. Y., January 31.

MERRILL FOWLER HOSMER, Springfield, Mass., to Miss Virginia Yuseck of Detroit, January 10.

DERBY HOSTER SWENGEL, Montgomery, Ala., to Miss Edith Milnor of Philadelphia, January 12.

CARROL CONWAY TURNER to Miss Marguerite Randolph, both of Memphis, January 10.

ROBERT C. ELLIS, Shelby, N. C., to Miss Patsy McCormick of Spencer, N. C., January 7.

JESÚS CHAPA BADILLO to Miss Aurora Garza at Laredo, Texas, January 29.

## Deaths

**Walter Lindley** ⊕ Los Angeles; Long Island College Hospital, Brooklyn, 1875; died, January 24, from cerebral hemorrhage, aged 70; (L.L.D., St. Vincent's College, 1903); former health officer of Los Angeles and member Los Angeles board of education; at one time superintendent of the Los Angeles County Hospital; dean of the University of Southern California College of Medicine, Los Angeles, 1902-1904; president of the state board of medical examiners; and member director of the California Hospital. He founded, in 1885, and since then has been editor and publisher of the *Southern California Practitioner;* one of the original incorporators of the Los Angeles County Medical Association. Dr. Lindley was president of the Medical Society of the State of California, 1889-1890. He was author of "California of the South," "The Delinquent Child in Great Britain and France," the "Traducers of Shakespeare," "Irish Dramatists and the Irish Drama," and several other works.

**Andrew Jackson Barchfield** ⊕ Mount Oliver, Pa.; Jefferson Medical College, Philadelphia, 1884; was killed, January 28, when the the roof of a moving picture theater collapsed in Washington, D. C., aged 58. Dr. Barchfield was born in Pittsburgh, May 18, 1863; educated at the Pittsburgh High School; for several years was city physician of Pittsburgh; president of the board of directors and member of the staff of the South Side Hospital, Pittsburgh; member of the city council, 1886-1888; member of the fifty-ninth to sixty-fourth Congresses, 1905-1917, thirty-second, Pennsylvania district. He was a delegate to the Peace Congress, held in Brussels, Belgium, 1905.

**Ella B. Everitt** ⊕ Philadelphia; Woman's Medical College of Pennsylvania, Philadelphia, 1891; professor of gynecology at her alma mater; at one time superintendent of the Northwestern Hospital for Women and Children, Minneapolis; was instantly killed, January 24, when the automobile in which she was riding was struck by a motor truck, aged 55.

**Herman C. H. Herold,** Newark, N. J.; Bellevue Hospital Medical College, New York City, 1878; member of the board of health for thirty years and at one time president; formerly surgeon at St. Michael's Hospital and physician in charge, City Hospital and Dispensary, Newark; died, January 20, from senility, aged 68.

**Louis H. Landman** ⊕ Cincinnati; Miami Medical College, Cincinnati, 1895; member of the American Academy of Ophthalmology and Oto-Laryngology; member of the Cincinnati Academy of Medicine; died, January 26, in Palestine, where he had gone to practice his profession among the Jewish colonists, aged 62.

**Daniel W. Dodson,** Nanticoke, Pa.; Jefferson Medical College, Philadelphia, 1888; member of the Medical Society of the State of Pennsylvania; formerly superintendent of New-

⊕ Indicates "Fellow" of the American Medical Association.

port Township schools for ten years; at one time coroner of Luzerne County; died, January 14, from acute articular rheumatism, aged 69.

**Marcus J. Levitt** ✠ Brooklyn; Baltimore University School of Medicine, Baltimore, 1900; for fifteen years on the staff of the Jewish Hospital, Brooklyn; president of the Williamsburgh Medical Society; died, January 25, at the Jewish Hospital, from meningitis, aged 44.

**William George Allen,** Glen Allan, Miss.; Medical College of Louisiana (Tulane University) Louisville, 1873; member of the Mississippi State Medical Association; Confederate veteran; former county health officer and member of the county pension board; died, January 12, from senility, aged 75.

**Frederick Wadsworth Halsey,** Boston; Medical Department of Columbian University, Washington, D. C., 1871; associate professor of diseases of the rectum, Boston University School of Medicine, Boston; formerly vice president of the Massachusetts Homeopathic Medical Society; died, January 20, aged 72.

**Moses Henry Aikins,** Burnhamthorpe, Ont., Canada; University of Toronto, Ont., 1858; M. R. C. S., England, 1858; formerly professor of anatomy at the Toronto School of Medicine; emeritus professor of anatomy, University of Toronto; died recently, aged 89.

**James P. Blackburn** ✠ McKeesport, Pa.; University of Pennsylvania, Philadelphia, 1891; organized the McKeesport Academy of Medicine of which he was first president; president of the chamber of commerce; died, January 22, from heart disease, aged 58.

**John M. Weaver,** Mount Juliet, Tenn.; University of Tennessee College of Medicine, Memphis, 1897; member of the Tennessee State Medical Association; died, January 14, from the effects of taking chloroform by mistake for cough mixture, aged 47.

**Christopher A. Anderson** ✠ Rush City, Minn.; University of Minnesota Medical School, Minneapolis, 1892; was instantly killed, December 25, when the automobile in which he was riding was struck by a train, aged 54.

**Howell White,** Fishkill, N. Y.; Bellevue Hospital Medical College, New York City, 1879; former coroner of Dutchess County; physician to the Highland Hospital, Beacon; died, January 24, from heart disease, aged 65.

**Edgar A. Bagley,** Alma, Mich.; Detroit Homeopathic Medical College, 1874; for two terms village president; formerly president of the Gratiot County Medical Society; died recently, at Wenatchee, Wash., aged 73.

**Wellington W. Dear,** Parsons, W. Va.; Bellevue Hospital Medical College, New York City, 1875; member of the West Virginia State Medical Association; died, January 17, from pneumonia, aged 67.

**Arthur Whitting Evans** ✠ Independence, Kan.; Hahnemann Medical College and Hospital of Chicago, 1892; died, January 14, from chronic nephritis, at the Research Hospital, Kansas City, aged 58.

**Henry Wilson Owen,** Bakersfield, Calif.; College of Physicians and Surgeons, Kansas City University, 1901; member of the Medical Society of the State of California; died in December, aged 53.

**Josiah I. Hunter** ✠ New Orleans; Tulane University of Louisiana, New Orleans, 1895; visiting physician, children's clinic, Touro Infirmary; died suddenly, January 15, from heart disease, aged 56.

**James Craig Temple,** Woodlawn, Pa.; Eclectic Medical Institute, Cincinnati, 1878; Medical Department Western Reserve University, Cleveland, 1883; died, January 19, aged 70.

**Harry Seely Welch,** San Francisco; Bellevue Hospital Medical College, New York City, 1872; formerly surgeon, Second Regiment of Infantry, National Guard; died recently, aged 73.

**John S. Schaul,** Chalfont, Pa.; University of Pennsylvania, Philadelphia, 1884; veteran of the Spanish-American War; died, January 22, at his winter home, St. Petersburg, Fla., aged 52.

**Henry M. Holtclaw,** Perry, Ga.; Bellevue Hospital Medical College, New York City, 1881; was found dead in bed, January 21, with a self-inflicted bullet wound through his head, aged 63.

**Peter Eugene Deeham,** Arlington Heights, Mass.; College of Physicians and Surgeons, Boston, 1894; physician in charge of the Pinewood Rest Sanatorium; died, January 22, aged 68.

**James H. Johnson** ✠ San Gabriel, Calif.; College of Physicians and Surgeons, Keokuk, Iowa, 1878; Medical Department of Columbia College, New York City; 1887; died, January 15, aged 71.

**James Len Yelton,** Augusta, Ky.; Hospital College of Medicine, Louisville, 1897; member of the Kentucky State Medical Association; died, January 18, from pericarditis, aged 52.

**Overton H. Ridings,** Meadville, Mo.; Missouri Medical College, St. Louis, 1883; died, January 13, at the Research Hospital, Kansas City, from carcinoma of the stomach, aged 66.

**Hyrum Smith Woolley, Jr.** ✠ Pocatello, Idaho; Northwestern University Medical School, Chicago, 1909; was killed in his office, January 9, by an unknown assassin, aged 47.

**Milton O. Gerhard,** Lancaster, Pa.; University of Pennsylvania, Philadelphia, 1877; member of the Medical Society of the State of Pennsylvania; died recently, aged 70.

**Aid B. Jordon,** Marblehead, Ohio; Detroit College of Medicine, Detroit, 1892; member of the Ohio State Medical Association; died, January 19, from septicemia, aged 52.

**Eugene David O'Neill,** Biddeford, Me.; College of Physicians and Surgeons, Baltimore, 1893; member of the Maine Medical Association; died, January 16, aged 56.

**Allan Fisher Pringle,** Dunville, Ont., Canada; Trinity Medical College, Toronto, 1883; formerly member of the board of education; died, January 17, aged 78.

**Austin C. L. Hottenstein,** Kutztown, Pa.; Jefferson Medical College, 1871; died, January 20, from the effects of a fall sustained two months previously, aged 74.

**David H. Harold,** Indianapolis; Physio-Medical College of Indiana, Indianapolis, 1889; formerly a minister in the Quaker Church; died, November 30, aged 77.

**Peter Paul Jaglinski,** Cleveland; Ohio State University College of Homeopathic Medicine, Columbus, 1921; died, January 13, from pneumonia, aged 28.

**John F. Watson,** Bastrop, La.; Medical College of Alabama, Mobile, 1885; president of the board of health; died, December 19, from heart disease, aged 58.

**Samuel Bradbury Hanlin,** Pomeroy, Ohio; Hahnemann Medical College and Hospital of Philadelphia, 1895; died, January 19, from diabetes, aged 49.

**Alexander Strong,** New York City; Medical Department of Columbia College, New York City, 1871; died, January 22, from heart disease, aged 75.

**Isaac M. Poynor,** Berryville, Ark.; University of Arkansas, Little Rock, 1890; member of the Arkansas Medical Society; died, November 21, aged 58.

**Hugo Malor,** Louisville, Ky.; University of Louisville, Louisville, 1898; was found dead in his office, January 20, from heart disease, aged 58.

**James I. Douthart,** Pratt, Kan. (license, Kansas, 1901); surgeon for the Long Island Railroad; died, January 25, at Long Beach, Calif., aged 78.

**George W. Bley** ✠ Beardstown, Ill.; Jefferson Medical College, Philadelphia, 1881; died suddenly, January 20, from angina pectoris, aged 70.

**John B. Conaway,** York, Neb.; Rush Medical College, Chicago, 1888; Civil War veteran; died, January 13, from senility, aged 81.

**Charles F. Dupre,** Louisville, Ky.; Kentucky School of Medicine, Louisville, 1871; Civil War veteran; died, January 18, aged 83.

**Franklin C. Heard,** Brownsville, Tenn.; Medical College of Alabama, Mobile, 1872; died, January 18, at Ittabena, Miss., from paresis.

**Walter W. Matson** ✠ Brookville, Pa.; Medical Department of Columbia University, New York City, 1889; died, January 21, aged 56.

**Fanny Wohlfeil Apfel,** Brooklyn; University of Lemberg, Poland, 1872; died, January 5, from intestinal obstruction, aged 81.

**James L. Dedge,** Alma, Ga.; Southern Medical College, Atlanta, 1890; died, December 17, following a long illness, aged 53.

**George Alvin Hill** ✠ Philadelphia; University of Pennsylvania, Philadelphia, 1874; ophthalmologist; died, January 23, aged 70.

**Cyrus L. Wilson,** Ewing, Ind.; University of Louisville, Louisville, Ky., 1881; died, January 18, from heart disease, aged 68.

# The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

## STYPTYSATE NOT ADMITTED TO N. N. R.

### Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following report, declaring Styptysate (Ernst Bischoff Co., Inc.) inadmissible to New and Nonofficial Remedies.

W. A. PUCKNER, Secretary.

Styptysate, according to the advertisement of Ernst Bischoff Co., Inc., New York, is "obtained by dialysis from Bursa Pastoris (Sheppard's [*sic!*] Purse)." It is claimed to be "The Remedy For Hemorrhages," to be "Superior to Ergot and Hydrastis," "of particular advantage in Menorrhagia and Metorrhagia" and to have been "found of great value in vesical hemorrhages and hemorrhages from mucous membranes in general." The Styptysate label bears the synonym "Dialysate Herba Bursa Pastoris"; the statement that it contains "alcohol 11 per cent." and that it is "made in Germany." No other statement of the composition or strength of "Styptysate" is furnished nor is the name of the German manufacturer disclosed.

In an advertising circular entitled "Styptysate, a New Reliable Hemostatic," it is declared that in recent years the plant, Shepherd's Purse (*Capsella bursa pastoris*), "has been submitted to clinical tests in the form of a concentrated dialysate, known as Styptysate, by Loewy, Oppenheim, Krummacher and others, and that their reports coincide in regard to Styptysate as a hemostatic *par excellence*, particularly in uterine hemorrhages, even in cases where ergot and hydrastis had failed to produce satisfactory results." The circular also reprints some "short clinical reports" without reference to their authorship; one ascribed to Krummacher and two ascribed to "B.H.M., Kansas City, Mo.," and the following references: "A. Krummacher, M.D., *Monthly Review for Obstetrics and Gynecology*, Berlin, Vol. XLIX, 4, and Vol. LII." "H. Oppenheim, M.D., *Medical Clinic*, Berlin, 1920, 35."

Shepherd's Purse is a weed common in the United States and in Europe. Like most other herbs, it has some reputation as a folk medicine. It is used by eclectics and homeopaths, being included in the Homeopathic Pharmacopeia of the United States. Shepherd's Purse receives no consideration at the hands of the authors of standard works on materia medica, pharmacology or therapeutics.

From an examination of recent German medical publications, it appears that the use of Shepherd's Purse was proposed as a substitute for ergot and hydrastis, when the latter drugs became scarce in Germany. These publications, in the main, emanate from those in the employ of pharmaceutical firms and deal with proprietary preparations or they are written by physicians who used these proprietary preparations at the solicitation of the manufacturers. For this reason the reported results must be accepted with reserve.

One of the proprietary preparations discussed in the German publications is Styptysate, manufactured by Isalfabrik Johannes Buerger, Wernigerode. It is said to be produced by submitting the juice of fresh Shepherd's Purse to dialysis and preserving the dialysate by the addition of alcohol. There is no statement as to the drug strength or the chemical or biological standards, if any, used in its manufacture; hence, the preparation is essentially a secret one. As first produced, the preparation seems to have been fortified by the addition of cotarnin: the dose was then given as ten to fifteen drops. Later, as the cost of cotarnin went up, this drug was omitted, and the drug strength increased; the dose of the new preparation is given as twenty-five to thirty drops. Just what relation, if any, the Styptysate of Ernst Bischoff Co., Inc., bears to that of the Isalfabrik Johannes Buerger, Wernigerode, cannot be determined from the Bischoff advertising. If it has any relationship the announcement that no narcotic order is required when ordering Styptysate would indicate that the new preparation is supplied; the old one with its addition of cotarnin would require a narcotic order. On the other hand, the recommended dose of the cotarnin-free preparation is twenty-five to thirty drops, whereas the product sold by Bischoff and Co. is to be given in doses of ten to fifteen drops—that is, in the amount proposed for the cotarnin-fortified product.

What justification is there for the claim that Styptysate has been submitted to clinical tests by Loewy, Oppenheim and Krummacher and found to be a hemostatic *par excellence* and efficient even where ergot had failed to give satisfactory results? Loewy (*Zentralblatt für Gynäcologie* **42**:920, 1921) made some pharmacologic tests on guinea-pigs with the cotarnin-containing preparation, but reported no clinical trials. Hans Oppenheim (*Medizinische Klinik*, Aug. 29, 1920, p. 906) reported that he was agreeably surprised at the excellent results (*vorzueglichem Erfolg*) obtained with the drug but he did not assert that it is superior to ergot.

Krummacher reported on thirteen cases of profuse menstruation in which the patients were treated with Styptysate, using for a part, the preparation containing cotarnin and for the other a preparation without cotarnin. He reported as good results with the cotarnin-free preparation in larger dosage as with the cotarnin-containing preparation in smaller dosage. Krummacher did not compare Styptysate with ergot. Some of Krummacher's cases are quoted, with some typographical errors, in the Bischoff circular.

On the assumption that the product discussed in German publications is the Styptysate marketed in the United States, the best that can be said for it is, that during a shortage of ergot it was used in place of that established drug. There is no evidence to warrant the use of this indefinite proprietary in place of the biologically standardized fluidextract of ergot or other standardized ergot preparations.

Styptysate (Ernst Bischoff and Co., Inc.) is inadmissible to New and Nonofficial Remedies because its composition is semisecret and indefinite and there is no evidence that its uniformity and strength is controlled (Rules 1 and 2); further, it is inadmissible because the therapeutic claims advanced for it are exaggerated and unwarranted (Rule 6) and because there is no evidence that it possesses any advantage over established drugs such as the biologically standardized fluidextract of ergot or the definite ergot preparations admitted to New and Nonofficial Remedies.

# Correspondence

## "OPTIC NEURITIS IN SERUM SICKNESS"

*To the Editor:*—In reading Dr. Mason's article concerning serum sickness (THE JOURNAL, Jan. 14, 1922, p. 88), I was impressed with the quantity of serum (500 c.c. within four days) administered intravenously. I have seen it stated by authorities on the subject that the occurrence of serum reactions is independent of the quantity of serum employed. My experience, however, does not bear out this statement. My observations have tended to indicate that the frequency and degree of foreign protein reactions are considerably in direct proportion to the quantity (within certain limits) of protein injected.

I have never seen severe reactions or true serum sickness following the administration of small quantities (1 to 2 or 3 c.c.) of animal serum—although some deaths produced by the injection of immunizing doses are recorded—and the incidence of even mild manifestations is decidedly less than when larger quantities (30 c.c. or more) are employed. On the other hand, varying degrees of these reactions occur in nearly every instance in which 40 c.c. or more is used. As

to the degree of allergy, exhibitions other than slight urticaria are infrequent from the injection of from 1 to 3 c.c. of horse serum, whereas such large injections as from 60 to 200 c.c. are prone to evoke a chill, high fever, arthralgia, albuminuria, etc. The method of injection also influences reactions, the intravenous route affording more rapid and in some degree severer manifestations than the intramuscular or subcutaneous route. These observations are not inconsistent when we consider the effects of vaccines or of other foreign proteins, such as toxins, whose reactions are in direct proportion to the quantities absorbed.

LOUIS HANNAH, M.D., Sylvania, Ga.

## ECHTMAN'S RHINOPULMONARY REFLEX

*To the Editor:*—If the upper band of Riviere or the posterior portion of Krönig's isthmus is gently percussed in a person with healthy lungs and unilateral nasal obstruction, some degree of impaired resonance will be noticed in the majority of cases, and the impairment will be found to be localized to the side obstructed.

Riviere speaks of a similar phenomenon but in a rather general way. He says:

> If gentle percussion is applied up or down the back in a case of pulmonary tuberculosis at whatever stage, it will be found that bands of slight impairment are present at the apex, and also across the lower scapular region on both sides; but more strongly marked at the side of disease or of more advanced disease. . . . The upper of these bands reaches down to the level of the junction between the first and second dorsal vertebrae, the lower extends between the fifth and seventh dorsal spines. . . . The most notable source of possible error lies in the fact that the reflex is present in all marked cases of nasal disease, particularly if accompanied by obstruction. If nasal obstruction is present, no significance at all can be attached to the presence of the reflex bands of impairment.

What I noticed is, as stated above, that in the healthy subject with unilateral nasal obstruction, impairment, being present in the majority of such cases, is localized to the side obstructed.

This phenomenon may be of importance for diagnostic purposes. In the healthy subject with unilateral nasal obstruction the impairment, if present, should be only on the side obstructed. If in spite of the unilateral obstruction the impairment is found on both sides, some tuberculous lung disease should be suspected. If the nasal obstruction is on both sides, then "no significance at all can be attached to the presence of the reflex bands of impairment."

The spot of impairment in question corresponds also with the posterior portion of Krönig's isthmus. This isthmus "is a band of resonance which crosses the shoulder. Its narrowest point is at the top of the shoulder, and in both front and back it widens out to meet the extended areas of resonance beneath the clavicle and supraspinous fossa" (Norris and Landis, "Diseases of the Chest").

JOSEPH ECHTMAN, M.D., New York.

## "THE CLINICAL APPLICATION OF THE AUDION AMPLIFIER"

*To the Editor:*—I have just read with interest the article by Dr. Magnus J. Myres on "The Clinical Application of the Audion Amplifier" (THE JOURNAL, Jan. 14, 1922, p. 100). While stationed at Army General Hospital No. 16, New Haven, Conn., in the latter part of 1918, I was impressed with the difference of opinion that often arose over what was heard by a number of examiners who were studying patients with tuberculosis. I have also been impressed with the difficulty of bearing in mind sounds originally heard when examining patients at a later date. Knowing that the dictophones had been used for recording whispered conversation, I did not see why this apparatus could not be applied for the recording of pulmonary and cardiac sounds. With this idea in mind, I wrote the Dictaphone Company, March 9, 1920, which suggested the advisability of performing some experiments. Aug. 20, 1919, I also wrote to Mr. Edison. He replied that in his opinion the sounds heard through the stethoscope could be recorded on a phonograph by means of a simple Bell telephone and a four-stage audion, and that he was experimenting on the amplifying of sounds and would shortly try the experiment. It seems clear that such a method for recording unusual sounds, percussion notes, cough, râles, etc., would be of considerable service, both in teaching and in clinical practice.

O. L. SUGGETT, M.D., St. Louis.

## "BONE AND JOINT CHANGES IN CONGENITAL SYPHILIS"

*To the Editor:*—With reference to the interesting paper by Drs. Dembo, Litchfield and Foote (THE JOURNAL, Feb. 4, 1922, p. 319), it might be well to call attention to two theses in which these conditions have been thoroughly described. I refer to the thesis by Dr. George Noir on "Dactylite syphilitique" (Paris, 1906), in which that entity is well discussed from the clinical standpoint. The late R. W. Taylor was among the first to describe this condition, and his papers are still classical. Dr. Edouard Benazet has given an interesting and practical description with special reference to syphilis of the long bones. His thesis (Paris, 1911) on "Syphilis héréditaire tardive des os longs chez l'enfant et chez l'adolescent" is devoted largely to a description of the roentgen-ray findings in a large number of cases.

B. BARKER BEESON, M.D., Chicago.

## THE PRICE OF MEDICAL BOOKS

*To the Editor:*—The swarm of profiteers that appeared during the war has been materially diminished, as pressure of public opinion has gradually caused a reduction to near prewar levels in most lines of trade.

Among the profiteers who still hold out for their war prices are the publishers of medical books. The prices demanded today by the medical publishing houses are little less than extortionate. In any recent issue of THE JOURNAL are advertisements listing books at $10 and $12 which sold for $5.50 and $6 in 1916; small octavos of less than 300 pages are priced at $6.50.

It is time that physicians should protest, and in a practical way. Every doctor subscribes to enough periodical literature to keep him up to date, if read, so there would be no need of his becoming "rusty" during a year's vacation from buying double-priced medical books.

ALBERT O. HOLMES, M.D., Colorado Springs.

## PRIORITY IN USE OF ADHESIVE STRIPS FOR VARICOSE ULCERS OF THE LEG

*To the Editor:*—In connection with the recent discussion in THE JOURNAL as to priority in the use of strips of adhesive plaster in the treatment of ulcers of the leg, it may not be amiss to call attention to the fact that Dr. Thomas Baynton of Bristol described and successfully employed this method as early as 1798 (Duncan's Annals of Medicine, 1798, reviewed in the *Medical Repository*, New York **3**:93, 1800).

Baynton told how to prepare the plaster, and his method of application differed in no essential from that more recently advised. Truly the age and pedigree of methods of treatment are often uncertain and difficult to determine.

GEORGE H. WEAVER, M.D., Chicago.

# Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

## COMPARISON OF MERCURIAL PREPARATIONS USED IN THERAPY OF SYPHILIS

*To the Editor:*—Kindly advise me regarding the dosage and merits of mercuric cacodylate given by intramuscular injection for syphilis. I have injected two-thirds grain once a week instead of 1 grain of mercuric salicylate because the former caused less pain and tenderness. What is your opinion as to the relative merits of these two agents? Of how much mercuric salicylate is two-thirds grain of mercuric cacodylate equivalent in therapeutic values? Is it likely that we can get as good results from mercuric cacodylate?

In spite of my using a long needle and injecting the mercuric salicylate into the muscle beneath the fascia, the patient often complains of a great deal of pain and tenderness; hence the temptation to inject mercuric cacodylate instead. C. F. VOYLES, M.D., Indianapolis.

ANSWER.—As cacodylates have been found practically worthless in the treatment of syphilis, mercuric cacodylate must be considered as merely an administration form of mercury to be compared with other mercurial preparations used for the same purpose. A dose of 0.04 gm. (⅔ grain) of mercuric cacodylate—or, rather, the double salt with sodium chlorid used under this name, which represents 23 per cent. of HgO—contains approximately 0.01 gm. (⅙ grain) of mercury; and, as mercuric salicylate contains a little more than twice as much (from 54 to 59.5 per cent.) of mercury, the equivalent dose of the latter would be, roughly, 0.02 gm. (⅓ grain). In other words, when one gives a dose of 0.06 gm. (1 grain) of mercuric salicylate, one gives three times as much mercury as when giving 0.04 gm. (⅔ grain) of mercuric cacodylate. Hence not more than one third the therapeutic effect might be expected from these injections of cacodylate.

The two preparations cannot be compared with each other as to local or general action, as the cacodylate is soluble while the salicylate is practically insoluble. The cacodylate should rather be compared with such a preparation as mercuric succinimid. The latter probably causes no more pain on intramuscular administration than the former. As it is improbable that the soluble cacodylate would remain in the system any longer than the soluble succinimid, the cacodylate has to be administered as often as the succinimid, i. e., daily, in order to maintain adequate mercurial action.

The reason why mercuric salicylate is a favorite drug is the argument that, because of its comparative insolubility, it forms a depot of mercury in the tissues from which the metal is slowly given off, so that a week's dose may be administered at one time. To keep the patient under as continuous mercurialization as would be secured by the ordinary dose of 0.10 gm. (1½ grains) of mercuric salicylate given once a week, six doses of 0.04 gm. (⅔ grain) of cacodylate would have to be given: in other words, a daily dose excepting Sunday. The pain and induration produced by mercuric salicylate is the price the patient must pay for the convenience of weekly administrations.

## FORMALDEHYD POISONING

*To the Editor:*—Recently a patient drank 4 ounces (120 c.c.) of formaldehyd and lived. This is a new form of poisoning to me, and I would appreciate some information on the subject, giving amounts taken, treatment, results, deaths and frequency of this form of poisoning. Sample is sent under separate cover. I have searched through the files of THE JOURNAL and do not find much there or in the texts.

B. L. HALE, M.D., Cherryvale, Kan.

ANSWER.—A number of cases of poisoning by formaldehyd solution have been reported. The symptoms consist of immediate and severe abdominal pain; often sudden and prolonged loss of consciousness; cyanosis; collapse, and repeated vomiting of blood-stained mucus. The vomitus and stomach washings, as well as the stools, have a strong odor of formaldehyd. The urine contains formic acid. In fatal cases, death usually occurs in from twenty-four to forty-eight hours, although several patients have succumbed in less than thirty minutes. The necropsy reveals severe gastritis with erosions. In nonfatal cases, the urine is suppressed for from twelve to twenty-four hours, after which it generally contains blood and casts. There is often diarrhea and tenesmus, sore mouth and dysphagia. The recovery is curiously rapid, the patients being well within a week. The patients who died all took more than 90 c.c. (3 fluidounces) of the commercial (37 per cent.) solution. The largest quantity from which recovery has previously been reported is 60 c.c. (2 fluidounces), except in one case in which the patient swallowed a quantity believed to be from 100 to 120 c.c. (3 to 4 fluidounces).

Since the amount taken in Dr. Hale's case is about the maximum of any reported in which recovery took place, it seemed possible that the solution was not of full strength. An assay of the specimen in the A. M. A. Chemical Laboratory, however, showed 37 per cent. of formaldehyd, which is fully up to the U. S. P. standard. The treatment consists in the administration of very dilute ammonia water, ammonium salts in solution and lavage.

## DEPRECIATION OF ROENTGEN-RAY APPARATUS DEDUCTIBLE FOR INCOME TAX

*To the Editor:*—What percentage for depreciation may be deducted from income tax on roentgen-ray outfit; also on other surgical appliances?

JOSEPH SPANGLER, M.D., Buffalo.

ANSWER.—There is no definite percentage deductible for depreciation. The plan generally accepted by the Internal Revenue Office is the original cost of the article (or its value on March 1, 1913, if purchased before that date) divided by the number of years of its usefulness. This, of course, cannot be calculated in the case of each surgical appliance, so that a general average must be struck. If the amount deducted is reasonable and can be justified if necessary, there will probably be no difficulty about its being allowed. It is best in all cases to support claims by a sworn inventory list.

## SCARLET FEVER

*To the Editor:*—Please answer the following through Queries and Minor Notes, and omit my name: 1. What is considered a safe period of isolation in a case of mild, uncomplicated scarlet fever? 2. What is the present opinion of authorities in regard to the danger of infection from desquamated skin? 3. What disinfection are boards of health in the large cities using after scarlet fever? E. V.

ANSWER.—1. The period of isolation in scarlet fever has generally been shortened to four or five weeks in the absence of discharges from the nose and ears, and with the tonsils free from any active inflammatory process.

2. Most authorities are inclined to the opinion that the desquamating skin can be safely ignored as a means of spreading scarlet fever.

3. The tendency among boards of health has been to depend more on disinfection by steam and boiling, and on mechanical cleansing by washing with soap and water, by painting, papering, etc., and to restrict the use of chemical disinfectants. Custom has, however, deterred many from entirely discarding the old methods of fumigation with formaldehyd gas.

## STATE EMPLOYEES AND THE INCOME TAX

*To the Editor:*—I note that your statements concerning income tax make no reference to physicians in the employ of the state. I should like to inquire whether physicians employed by the state in state institutions are required to pay a tax as others when the income is above $1,000 for single men. L. P. H., Fort Wayne, Ind.

ANSWER.—Salaries or wages paid to officials or employees of states, counties or cities are exempt from taxation under the federal income tax law. This is the point on which the first income tax law was declared unconstitutional by the United States Supreme Court, it being held that the federal government has no authority to increase or diminish compensation paid to officials of any state or political subdivision thereof. On the income tax returns, the instructions under paragraph five, items exempted from tax, read: "Compensation paid by a state or political division thereof to its officials or employees." Under this exemption all money paid out for salaries or wages by a state, county, township or municipality is exempt from taxation under the federal law. This exemption, of course, would not apply to any state income tax law that may have been passed.

## MEDICAL HISTORY OF THE WORLD WAR

*To the Editor:*—Where can I get the first volume of the "Medical History of the World War," designated as Volume XV — Statistics, described under Current Comment in THE JOURNAL, February 4?

J. B. PROCTOR, M.D., New York.

ANSWER.—Copies may be procured from the Superintendent of Documents, Government Printing Office, Washington, D. C., $1.75 per copy.

# Medical Education, Registration and Hospital Service

## COMING EXAMINATIONS

ALASKA: Juneau, March 7. Sec., Dr. Harry C. De Vighne, Juneau.

CALIFORNIA: Los Angeles, Feb. 13-16. Sec., Dr. Charles B. Pinkham, 342 Flood Bldg., San Francisco.

CONNECTICUT: Hartford, March 14-15. Sec., Reg. Bd. Dr. Robert L. Rowley, 79 Elm St., Hartford.

CONNECTICUT: New Haven, March 14. Sec., Eclec. Bd., Dr. James E. Hair, 730 State St., Bridgeport. Sec., Homeo. Bd., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

KANSAS: Topeka, Feb. 14. Sec., Dr. Albert S. Ross, Sabetha.

MAINE: Portland, March 14-15. Sec., Dr. Frank W. Searle, 775 Congress St., Portland.

MASSACHUSETTS: Boston, March 14-16. Sec., Dr. Samuel H. Calderwood, State House, Boston.

NATIONAL BOARD OF MEDICAL EXAMINERS. Written examination in Class A medical schools, Part I, Feb. 15-17; Part II, Feb. 20-21. Sec., Dr. John S. Rodman, 1310 Medical Arts Bldg., Philadelphia.

NEW HAMPSHIRE: Concord, March 9-10. Sec., Dr. Charles Duncan, Concord.

VERMONT: Burlington, Feb. 14. Sec., Dr. W. Scott Nay, Underhill.

WYOMING: Cheyenne, Feb. 13-15. Sec., Dr. J. D. Shingle, 206 Citizens Bank Bldg., Cheyenne.

## BUFFALO'S HEALTH CENTER PLAN

The health center plan adopted by the Department of Hospitals and Dispensaries of Buffalo was organized for two objects: (1) one to provide medical advice, diagnosis and treatment for all people in Erie County who are unable to pay for such services, and (2) to furnish licensed medical practitioners with adequate hospital and laboratory facilities.

The department has maintained seven dispensaries located in different parts of Buffalo. Each dispensary has a full-time city physician in charge, with one part-time assistant and one full-time dentist working eight hours daily, and two clerks. Private hospitals are authorized to make emergency ambulance calls at public expense for admission of patients at any time.

In addition to these dispensaries there are, in various parts of the city, special clinics for tuberculosis, genito-urinary diseases, neuropsychiatry, drug addiction, well babies and sick babies, and prenatal and dental clinics.

In order to furnish licensed medical practitioners of Erie County with adequate hospital facilities, it has been arranged to have three hospitals available for all departments of medicine at modern prices. All licensed medical practitioners in the county are privileged to refer pay patients to, and care for pay patients entering, any of the hospitals conducted by the department, pay patients being admitted only on the recommendation of a licensed medical practitioner, the pay patients who apply for admission unrecommended by a physician being refused. The schedule of prices covering these pay cases are:

| | Residents | Nonresidents |
|---|---|---|
| All patients | $ 2.50 | $ 3.00 |
| Boarders | 1.25 | 1.50 |
| Operating room — ether, chloroform or local anesthetic | 5.00 | 5.00 |
| Operating room—nitrous oxid anesthetic | 10.00 | 10.00 |
| Use of lying-in room | 5.00 | 5.00 |
| Commitment fee, psychopathic patients | 5.00 | 5.00 |
| Ambulance fee | 3.50 | 5.00 |

Adequate diagnostic, laboratory and roentgen-ray services are provided in connection with the hospitals, dispensaries and special clinics conducted by the department. A complete report, including records of the laboratory work, is mailed to the physician with whom the patient originated. Fees for laboratory tests are very reasonable, generally running from $1 to $5 except some special tests which are higher. Roentgen-ray fees are $6 and upward according to the number of plates required. Among the other services included in the plan are tonsillectomies, intubation, lunacy commitments, necropsies and cystoscopic examinations. The total number of consultations for the year 1921 was 189,832. The separate patients cared for numbered 35,790.

## REPORT OF THE COMMITTEE OF MEDICAL EDUCATION OF THE PHILADELPHIA COUNTY MEDICAL SOCIETY

Your committee has had a number of meetings at which the problem of medical education was discussed. As the result of its deliberations, the committee would present the following report:

### SCARCITY OF PHYSICIANS

It is generally admitted that there is a scarcity of doctors, especially in the rural districts and small towns of Pennsylvania, as well as elsewhere in the United States. Even in the cities there are not enough men to serve as interns, as physicians in outpatient departments, and in junior positions in hospitals. Authorities differ as to the proper ratio of physicians to population; some giving it at 1 to 500; some as 1 to 700; a fair average would probably be 1 to 600. There is at present in Philadelphia one physician to every 526 persons; in Pittsburgh one physician to every 447 persons; and throughout the state, including these two cities, one physician to every 768. When the population of Philadelphia and Pittsburgh is subtracted, then there is in the state only one physician to every 947 inhabitants, or practically one to 1,000. These figures, however, do not express the actual ratio of practicing or "callable" physicians in the state, since at the present time many though registered as physicians do not directly minister to the general needs of the community, such as full time teachers, laboratory men, some specialists, and men engaged in insurance work and in industrial medicine.

There are many reasons for the scarcity of physicians. Among them may be mentioned the following:

A. The reduction in the number of medical schools throughout the country, which since it was accomplished by the elimination of the poorer schools is worthy of commendation.

B. The war.

C. Limitation in the number of students accepted by the best medical schools.

D. The long time required to obtain a medical education and the license to practice.

E. A special reason for the scarcity of doctors in rural communities, in addition to those given above, is that capable men are deterred from settling in country districts because of the lack of proper hospital facilities.

As a result of the foregoing causes and others not herein mentioned, the small cities and towns and villages are greatly in need of physicians.

It was reported at meetings of the committee that there is a town of 3,500 population in Pennsylvania with only one physician, and another of 2,500 with only one physician, and one of fair size in Maryland without any physician. The lack of trained medical men has led to the influx of quacks and irregular practitioners.

The committee feels that the Philadelphia County Medical Society should go on record on these matters, and to that end respectfully submits the following resolutions:

### RESOLUTIONS SUBMITTED

1. It is desirable to increase the number of students admitted to medical schools.

2. Extra-urban practice should be made more valuable and more attractive by erecting modern hospitals throughout the state, placing them with due regard to the needs of the communities.

3. College, as well as primary and secondary education, should be speeded up so that men and women may be able to enter medical school at an earlier age.

4. The committee recommends that a survey be made of the physicians in Philadelphia to determine how many are actually engaged in family practice.

DAVID RIESMAN, Chairman, Prof. Clin. Med.,
Univ. of Pa. School of Med.
THOMAS MCCRAE, Prof. Pract. Med., Jefferson Med. Coll.
WILLIAM PEPPER, Dean, Univ. of Pa. School of Med.
JOHN H. GIBBON, Prof. Surg., Jefferson Med. Coll.

### Minnesota October Examination

Dr. Thomas S. McDavitt, secretary, Minnesota State Board of Medical Examiners, reports the oral, written and practical examination held at Minneapolis, Oct. 4-6, 1921. The examination covered 15 subjects and included 80 questions. An average of 75 per cent. was required to pass. Twenty-five candidates were examined, all of whom passed. Forty-five candidates were licensed by reciprocity and 8 candidates were licensed by endorsement of credentials. The following colleges were represented:

| College | PASSED | Year Grad. | Per Cent. |
|---|---|---|---|
| Bowdoin Medical School | | (1920) | 87.8, 88.3 |
| Johns Hopkins University | | (1917) 89.1, | (1919) 88.3 |
| University of Minnesota | | (1921)* | 85 |
| Washington University | | (1918) | 89.8 |
| Columbia University | | (1918) 88, | (1920) 90.4 |
| University of Pennsylvania | | (1917) | 88.2, 93.2, (1920) 88.5, 92.8 |
| University of Tennessee | | (1919) | 87.4 |
| Vanderbilt University | | (1916) | 91 |
| University of Toronto | | (1907) 88.9, | (1914) 87.1, 89.9, (1915) 90.6, (1920) 92.4 |
| Western University | | (1917) 91.3, | (1918) 93.2 |
| McGill University | | (1910) 89.1, | (1917) 93.3 |
| University of Munich | | (1912) | 89.1 |
| University of Edinburgh | | (1918) | 87.9 |

| College | LICENSED BY RECIPROCITY | Year Grad. | Reciprocity with |
|---|---|---|---|
| University of Alabama | | (1918) | Alabama |
| George Washington University | | (1920) | Dist. Colum. |
| American College of Medicine and Surgery | | (1905) | Illinois |
| Hahnemann Medical College and Hosp. of Chicago | | (1906) | Illinois |
| Northwestern University | | (1917†), (1920, 2), (1921, 2) | Illinois |
| Rush Medical College | | (1916) | Illinois, Ohio, South Dakota, (1921, 2) Illinois |
| University of Illinois | | (1920) | Illinois |
| Indiana University School of Medicine | | (1917) | Indiana |
| College of Physicians and Surgeons, Keokuk | | (1878) | Iowa |
| State University of Iowa College of Medicine | | (1917), (1918), (1919), (1920) | Iowa |
| Tulane University | | (1909) | Louisiana |
| Johns Hopkins University | | (1916) | Maryland, (1917) Michigan (1918), (1919), (1920) Maryland |
| Boston University | | (1918) | Maine |
| Univ. of Michigan Med. School | | (1906), (1916), (1921) | Michigan |
| St. Louis University School of Medicine | | (1920) | Missouri |
| Washington University | | (1919) | Wisconsin |
| John A. Creighton Medical College | | (1917) | Nebraska |
| University of Nebraska | | (1919) | Nebraska |
| Ohio State University College of Medicine | | (1920) | Ohio |
| Medico-Chirurgical College of Philadelphia | | (1915) | Penna. |
| University of Pennsylvania | | (1918), (1919) | Penna. |
| Vanderbilt University | | (1917) | Missouri |
| University of Virginia | | (1910) | Alabama, (1919) Virginia |
| Marquette University | | (1911), (1920), (1921) | Wisconsin |

| College | ENDORSEMENT OF CREDENTIALS | Year Grad. | Endorsement with |
|---|---|---|---|
| Rush Medical College | | (1919), (1920) | N. B. M. Ex. |
| State University of Iowa College of Medicine | | (1915) | N. B. M. Ex. |
| Harvard University | | (1917) | N. B. M. Ex. |
| University of Pennsylvania | | (1918, 3), (1919) | N. B. M. Ex. |

* This candidate has finished the medical course and received the M.B. degree and will obtain the M.D. degree after he has completed a year's internship in a hospital.

### Connecticut November Examination

Dr. Robert L. Rowley, secretary, Connecticut Medical Examining Board, reports the written examination held at Hartford, Nov. 8-9, 1921. The examination covered 7 subjects and included 70 questions. An average of 75 per cent. was required to pass. Of the 33 candidates examined, 25 passed and 8 failed. The following colleges were represented:

| College | PASSED | Year Grad. | Per Cent. |
|---|---|---|---|
| Bowdoin Medical School | | (1921) | 79.9 |
| Baltimore Medical College | | (1898) | * |
| Johns Hopkins University | | (1913) | * |
| University of Maryland | | (1921) | 75.5 |
| Harvard University | | (1904, 2),* (1913),* | (1921) 87.3 |
| Tufts College Medical School | | (1921) | 75.7, 79.7, 83.4, 85.4 |
| Columbia University | | (1905),* (1913),* | (1921) 90.9 |
| Fordham University | | (1921) | 80.2, 86.1 |
| Medical Dept. of the Univ. of the City of New York | | (1888) | * |
| University and Bellevue Hospital Medical College | | (1921) | 87.7 |
| Jefferson Medical College | | (1921) | 85.4 |
| Woman's Medical College of Pennsylvania | | (1921) | 87.7 |
| University of Vermont | | (1920) 75.8, | (1921) 78.3 |
| McGill University | | (1918) | 78.7 |
| Syrian Protestant College | | (1918)† | 76.4 |
| | FAILED | | |
| Baltimore Medical College | | (1913) | 66.8 |
| College of Physicians and Surgeons, Baltimore | | (1904) | 68 |
| Albany Medical College | | (1900) | * |
| University and Bellevue Hospital Medical College | | (1910) | 73.1 |
| Jefferson Medical College | | (1912) | 70.4 |
| University of Vermont | | (1899) | 53.3 |
| University of Budapest | | (1919)† | 51.3 |
| University of Naples | | (1913)† | 58 |

* No grade given.
† Graduation not verified.

# Social and Industrial Medicine

## PRESENT CONDITION OF CHILD HEALTH IN CENTRAL EUROPE

A. C. BURNHAM, M.D.
Medical Director, American Red Cross in Europe
PARIS, FRANCE

Immediately after the armistice, America was literally flooded with reports of the starvation and disease among children in central Europe. As a result of these reports and the very evident need, relief to the amount of many millions of dollars was poured into the war stricken countries, chiefly for infants and children. While most of this money came from America through the American Relief Administration and the American Red Cross, a considerable amount was donated by England, France, Holland, Switzerland and other European countries. The relief effort was world wide, South America, Australia, New Zealand and many other far distant countries having a share in this humanitarian work. As an example of the widespread character of this postwar effort, it may be mentioned that at one time there were more than sixty foreign relief organizations operating in Vienna alone, many of them representing former enemy countries.

At the present time, three years after the armistice, it should be of interest and profit to make a study of the situation as a whole and to determine, so far as we are able, the present condition of child health and the indicated needs of the future.

At the outset it may be said that even today it is impossible to furnish much more than an expert opinion based on such facts as are available. The present economic conditions are such as to make any estimate of requirements based on import and export balances and larger trade movements practically valueless. Even mortality and morbidity reports are likely to lead to fallacious conclusions. In many cases the latest mortality reports available are for 1920, and a few cannot be obtained beyond 1919. What is of interest is the actual condition today, in December, 1921, three years and a month after the firing of the last gun.

For this purpose, such statistics as are available for the various countries of central Europe (always excluding Russia) have been collected from various sources. These have been studied together with the regular reports from more than 500 child health stations under the control of the American Red Cross in central Europe. In addition to these reports, which are largely statistical in character, I have collected a large amount of miscellaneous information through personal interviews with physicians and nurses who have worked under field conditions since the armistice. In order to secure evidence at first hand, visits have been made to Poland, Czechoslovakia, Hungary and Austria during the latter half of 1921. Facts and impressions determined in this manner form a fairly satisfactory basis in order to estimate with reasonable accuracy the present status of child health in central Europe as compared with conditions immediately after the cessation of hostilities.

### STARVATION

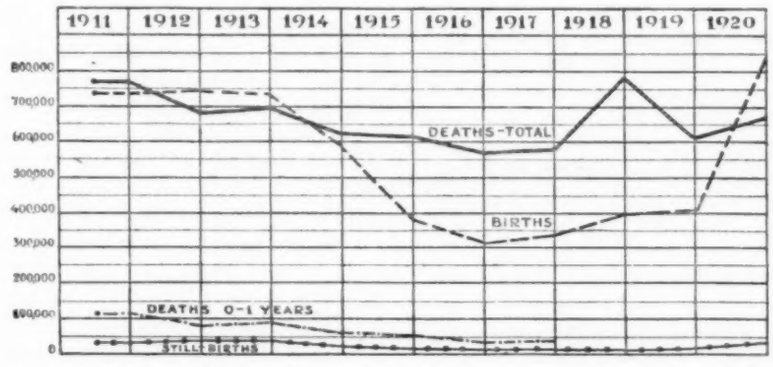
Are the children of Europe actually starving? While there are still many children in central Europe suffering from malnutrition and undernutrition at present, it may be said that there is now practically no mass starvation in the same sense as that which has been reported in Russia. Among groups of refugees that still exist in certain localities there are still a large number of children whose families have no means of support, and who are at present more or less wholly depen-

dent on charity. However, this group is, comparatively speaking, not large, and under normal conditions could be readily absorbed. Under conditions such as exist in Europe at present, refugees are not easily assimilated, and they will require foreign relief for some time to come. This group of refugees totals somewhere in the neighborhood of half a million persons in all of Europe. They are located chiefly in eastern Poland and in the neighborhood of Constantinople. These refugees have in most cases totally exhausted their resources.

Excluding this group of refugees (and again always excluding Russia), the general trend during the last three years has been one of steady and gradual improvement. The impressions of a trained health worker among the children of Austria or Poland, where original conditions were said to have been the worst, is that at present the children appear to compare fairly well with children in other countries. As a rule their color is good, they appear fairly well fed, and they laugh and play like normal children. The languor and apathy so apparent after the war has practically disappeared. When they are examined by physicians and graded according to physical development, it is found that from 50 to 75 per cent. are underdeveloped. These figures at first sight appear very high and are certainly not favorable to the future development of a nation; but it is not certain how much of this malnutrition is due to food shortage and how much to other causes. Similar figures have been obtained in certain American communities in which there has been no food shortage.

Such reports as we have been able to secure would indicate that central Europe as a whole is not yet self-supporting. Most of the budgets contain a large item for the purchase of food imports, and there is little or no food export from Europe at present. However, food supplies are gradually becoming more plentiful, reserve stocks being much larger than during the first two years after the armistice. Sugar, which often could not be obtained at all in certain countries during 1919 and 1920, is now fairly common, although the price is still very high. Butter and eggs can now be secured by the peasant and skilled workmen, and are even occasionally seen on the tables of the intelligentsia.

The chief difficulty today is an economic one. The price of certain articles of food has risen from 300 to 1,000 times; and while the wage earner's income has increased, it has not kept pace with the cost of living. In the case of persons living on small incomes derived either from savings or war pensions, the economic burden of inflation has been particularly heavy, and children in such families have been hard put to it to secure sufficient food. On the other hand, the speculator and the merchant, either rightly or wrongly called profiteers, have made enormous profits, and there is no limit to the quantity or quality of the food which they are able to secure. However, such inequalities are properly dealt with by measures which influence the internal economy of a country, and are not in general subjects for foreign relief. It is also clear that in certain isolated communities, especially in the mountainous sections of Austria, Galicia and Slovakia, life has been made almost impossible because of political changes which have almost totally deprived the inhabitants of their accustomed income, and this has in turn led to impoverishment and want. But in spite of these facts it can be fairly said that, outside of Russia, there is no widespread starvation in Europe. The American Relief Administration has recognized this and greatly diminished its plans for child feeding during the coming winter.




Births, stillbirths, deaths and infant deaths in France from 1911 to 1920, inclusive.

### RATIO OF BIRTHS TO DEATHS

During the war there was a rapid decrease in births, which reached its climax in most cities in 1918. At the same time there was an increase in the number of deaths, even when the military deaths were excluded from the calculations. This increase of deaths over births resulted in a steady decrease in population during the war period in virtually every city for which statistics are available. As a rule, this decrease was more marked in large cities than in small, and greater in small cities than in the rural districts. In 1919 and 1920 there was a general rapid decrease in the death rate, and at the same time a remarkable increase in births. In the country districts and smaller cities the annual decrease of population gave place to a natural increase, which approached the normal as early as 1919; but in the large cities the decrease still persisted, according to the latest figures available, those from 1920. The death rates for Vienna are given in the accompanying table.

It will be noted that the figures for births and deaths are gradually increasing, and it is to be expected that in 1921 the birth rate in Vienna, for the first time in seven years, will again show the so-called natural excess, just as occurred during 1920 in the smaller cities in the same territory. The increase of births is not limited to central Europe, but is seen in western Europe as well. Thus, France since the armistice has shown a most remarkable increase in births, so that for the first time in many years there has been an appreciable annual increase of from 4 to 8 per thousand inhabitants in the French population, compared with a prewar increase of less than one.

LIVING BIRTHS AND CIVILIAN DEATHS IN VIENNA, 1914-1920

| Year | Births | Infant Deaths | Total Civilian Deaths |
|---|---|---|---|
| 1914 | 36,378 | 5,074 | 29,872 |
| 1915 | 29,257 | 4,459 | 31,479 |
| 1916 | 23,491 | 3,320 | 31,762 |
| 1917 | 20,688 | 3,161 | 38,345 |
| 1918 | 19,257 | 2,941 | 42,265 |
| 1919 | 24,128 | 3,626 | 37,945 |
| 1920 | 27,821 | 4,296 | 32,519 |

### INFANT MORTALITY

Even before the war, the infant death rates during the first year of life were higher as a rule in central Europe than rates in England and the United States. In most of these countries there is a large percentage of illegitimate births, in which there is always a high mortality. Figures of from 120 to 150 deaths per thousand live births were not at all uncommon. With the war, the infant mortality rates increased moderately, but much less than might have been expected, owing in part to the comparatively greater decrease in illegitimate than in legitimate births, and in part to the

fact that, there being fewer children to care for, they received proportionally better care. There was a great shortage of milk, and for this reason many mothers nursed their infants rather than resort to the uncertainties of artificial feeding. As a matter of fact, this influence for good was so great that in some localities there was an actual decrease in infant mortality. With the rapid increase in the birth rate following the armistice, there was practically no improvement evident in infant mortality rates during either 1919 or 1920. In some places the rate increased slightly, probably as a result, in part, of the still further decrease in food supplies during 1919. Thus, in Vienna a rate of 155 in 1920, compared with a rate of 140 in 1919, shows an appreciable increase but less than might be expected. It should be noted that in cities showing a very rapid increase in birth rate, the infant mortality rate (deaths under 1 year per thousand births) as ordinarily calculated is much lower than the true infant mortality. The ordinary method of calculating infant mortality rates is accurate only when births and deaths are approximately the same over a series of years. Consequently, when a rapidly increasing birth rate is associated with a stationary or increasing infant mortality rate, it indicates a relatively greater increase in the infant death rates than the figures indicate. It is evident that, in most of the larger cities at least, the increase in the infant death rates during the postwar period has actually been greater than is shown by the mortality reports, and that in some cases the increase may reach as high as 20 per cent. During 1920 and 1921, the infant mortality has either remained nearly stationary or has tended to improve.

Among older children there appears to be a slight increase in the death rates, as compared with the prewar period; but, in the absence of definite figures showing the comparison of deaths to the total number of living children in certain age groups, it is most difficult to form any conclusions. It is quite evident that deaths among children up to 16 years of age have been less during 1920 than they were during 1917 and 1918; but whether they are less than during the prewar period is not so easily determined. It is certain that during the war there was a certain amount of natural selection, with the result that the children today represent the survival of the fittest; and for that reason under present conditions, which are approaching normal, there remains a group which is unusually sturdy and resistant to infection.

### INFECTIOUS DISEASES

With the exception of the ordinary infectious diseases, such as scarlet fever and diphtheria, which are endemic throughout Europe, there can be said to be comparatively little infectious disease in central Europe at present. Cholera, which has assumed epidemic proportions in Russia, has apparently not extended beyond this country. Only a few isolated cases have been reported in Poland, generally being brought in by Russian refugees.

Typhus occurred widely in Poland and Slovakia during the winter of 1920-1921, and among the refugees in Montenegro and Serbia during the same period. It may be expected that this disease will be endemic in these countries for some years to come, but the evidence at hand shows that it is rapidly being brought under control.

Tuberculosis increased rapidly during the war period. In children it is seen chiefly in the form of bone and gland tuberculosis, which is apparently much more common in Europe than in America. During the war, the death rates for tuberculosis rose rapidly; but, since the armistice, there has been a gradual and steady fall, according to all reports available. It is estimated that there is in Europe a much larger than normal percentage of children suffering from some type of tuberculosis.

Smallpox, typhoid and recurrent fever are endemic in certain parts of Poland, Slovakia and Serbia, but there is no outstanding epidemic of these diseases. In Montenegro and Albania the reports received show a tremendous amount of malaria and the almost universal occurrence of intestinal parasites.

If any one disease may be said to be most widely prevalent, it is without doubt anemia, due to malnutrition. For example, during May and June, 1921, some of the reports from the Baltic states showed that more than 50 per cent. of the children examined suffered from severe anemia. According to all reports, the number of children suffering from severe grades of this complaint is rapidly decreasing. There are, of course, many evidences of rickets; but these occur mostly in older children as a result of deficient diet during infancy. Many of these children require the orthopedic treatment to correct deformities. Rickets in infants is still very common, but occurs less frequently that it did a year ago. During the month of October, the reports from sixty child health stations in Austria under the control of the American Red Cross showed a prevalence of rickets much less than during 1919, but still considerably above the prewar average.

### THE OUTLOOK

In general, it may be said that central Europe is slowly but surely approaching normal, so far as child health is concerned. Mass starvation has disappeared, infant health has steadily improved, and older children appear healthier and better nourished than at the end of the war.

On the other hand, the economic conditions are less favorable. Hospitals, medical schools and dispensaries are having a difficult time to exist, largely because of the fact that the external and internal purchasing power of the monetary unit is steadily growing smaller. How much of this can be corrected by changes in internal administration and the cessation of the printing press, and how much must be helped by aid from without, is a financial and economic problem rather than one limited to relief.

The hospitals and other institutions for child health were aided during the war by large government grants. Since the armistice, these institutions have been existing largely on accumulated principal aided by hospital supplies received from foreign relief organizations. The hospital problem, not only in central Europe but in England and France as well, is at present a most serious one. It can be solved only when the internal finances of each country are on a reasonably sound basis and the purchasing power of the monetary unit has been restored to the prewar standard. In countries where this cannot be accomplished, hospitals, especially those supported by endowments, will require government or other aid for many years to come.

4, rue de Chevreuse, Paris (VI).

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**National Health Council Issues Revised Report on the Children's Bureau.**—The National Health Council has issued a report on the Children's Bureau of the U. S. Department of Labor, which outlines the legal authority, history and development of the bureau, its organization, current work, personnel, the federal Child Labor Law and the Act for the Promotion of the Welfare and Hygiene of Maternity and Infancy. The report on the Children's Bureau is one of five which have been prepared by the National Health Council. The others are on the Division of Vital Statistics of the U. S. Bureau of the Census, the Women's Bureau of the U. S. Department of Labor, the Division of School Hygiene of the U. S. Bureau of Education and a general report covering the health activities of the U. S. government. These pamphlets may be obtained without charge from the Washington office of the National Health Council, 411 Eighteenth Street, Washington, D. C.

# Book Notices

AN INTRODUCTION TO THE HISTORY OF MEDICINE. With Medical Chronology, Suggestions for Study and Bibliographic Data. By Fielding H. Garrison, A.B., M.D., Lieutenant-Colonel, Medical Corps; U. S. Army, Surgeon General's Office. Third edition. Cloth. Price, $9 net. Pp. 942, with 257 illustrations. Philadelphia: W. B. Saunders Company, 1921.

With its first publication in 1913, Dr. Garrison's "History of Medicine" assumed a place as the best American history of medicine ever published. We are not wont to indulge in superlatives, but the word "best" is warranted here, if ever. Dr. Garrison has continued to improve his text by emendations and additions and by revision through a second and a third edition. Since the previous edition there has been a revival of interest in medical history, and numerous researches have been conducted for the study of medical history throughout the world. Dr. Garrison has been in touch with this work. The order followed is chronological, ranging from the "identity of all forms of ancient and primitive medicine" to the "beginnings of organized preventive medicine in the twentieth century." In earlier editions this last section was perhaps least satisfactory. Every one realizes the difficulty of estimating the importance of contemporary work, since time alone in medicine fixes the value of original research. The book is completed by a number of valuable appendixes. A chronological table fixes important dates in the advance of medical science; a section entitled "Hints on the Study of Medical History" is valuable to those institutions which are endeavoring to give their students more background for their current studies; the bibliographic notes are complete and accurate. The book is concluded with two excellent indexes, that on personal names including thousands of references to the makers of medicine. Altogether, this book represents a distinct achievement in American medical literature.

SINTESIS DE MEDICAMENTOS ORGÁNICOS. Por E. Fourneau, Director del Laboratorio de Química Terapéutica del Instituto Pasteur, de la Academia de Medicina de Paris, y A. Madinaveitia, Profesor de Química Orgánica y Biológica en la Junta Para Ampliacion de Estudios. Paper. Price, 20 pesetas. Pp. 448. Madrid: Calpe, 1921.

This book is by the director of the laboratory of therapeutic chemistry of the Pasteur Institute, noted for his discovery of stovain, in collaboration with the professor of organic and biologic chemistry in the Spanish Postgraduate School (Junta para Ampliación de Estudios). The preface is by Professor Carracido, the best known Spanish chemist. The text embodies, almost literally, the lectures on synthetic drugs delivered by Fourneau recently at Mâdrid, upholding his theory that the medical properties of compound drugs may be deducted from their molecular structure. A sketch is presented of the history, properties, field of application, composition and reactions necessary to synethesize antipyretics, anesthetics, hypnotics, antiseptics, arsenicals, mercurials, epinephrin group, phosphatids, nucleinic acids and alkaloids.

Following is much practical laboratory information in regard to the actual manufacture of synthetic drugs. While the book is a mine of valuable data, its value for the general practitioner is rather slight because of its technical character.

EPHRAIM MCDOWELL, "FATHER OF OVARIOTOMY" AND FOUNDER OF ABDOMINAL SURGERY. With an Appendix on Jane Todd Crawford. By August Schachner, M.D., F.A.C.S. Cloth. Price, $5. Pp. 331, with illustrations. Philadelphia: J. B. Lippincott Company, 1921.

It is generally conceded that Ephraim McDowell was the first to perform ovariotomy, and that the operation was done on a Mrs. Crawford; yet the whole incident is surrounded with so much legend and conflicting data that Dr. Schachner's presentation of the clearly ascertainable facts is well worth while. He has given background to the life of McDowell by including notes on the history and development of Kentucky, on Dr. McDowell's education abroad, on the influence of John Bell, on the notable contemporaries of McDowell, and on characteristics of country practice of McDowell's period. It appears that claims were made by English gynecologists that similar operations had been performed in England previous to the first operation performed by Dr. McDowell in Kentucky. Dr. Schachner analyzes these claims and shows by numerous citations from the literature, as well as by personal correspondence, that McDowell's claim is incontrovertible. A special chapter is devoted to the acceptance of the operation in France; then comes a study of the personal side of Dr. McDowell, a review of various celebrations, honors awarded him during life, and memorials in his honor after death. A final chapter deals with the available information relative to Mrs. Crawford. As a statement of the facts, and as a contribution to medical history, Dr. Schachner's book deserves great credit and commendation. The book is not, however, of such literary style as to be particularly attractive to the casual reader, and experience shows that medical men are little inclined to read medical history unless it is served to them with sufficient literary embellishment to make it a matter of pleasure as well as of profit.

PRINCIPLES OF MEDICAL TREATMENT. By George Cheever Shattuck, M.D., A.M., Assistant Professor of Tropical Medicine, Harvard Medical School. Contributions by the Following Authors: Tuberculosis, by John B. Hawes, 2D, M.D.; Acute Infectious Diseases Most Common in Childhood, by Edwin H. Place, M.D.; Influenza, by Gerald Blake, M.D.; Diabetes Mellitus, by Benjamin H. Ragle, M.D.; Serum Treatment of Pneumonia, by Henry M. Thomas, Jr., M.D. Fifth edition. Cloth. Price, $3.50. Pp. 309. Boston: W. M. Leonard, Inc., 1921.

This little book, the author states, "represents an attempt to offer clearly and concisely sound principles of treatment based on known pathology." The systematic arrangement of the text, its brevity and at the same time completeness are witness to his success. In most cases no attempt is made to enter into a detailed description of the methods of treatment. The statement of the indications and principles make up for the deficiency. The consideration of the subject of cardiovascular and renal diseases by Dr. Shattuck, that of diabetes by Dr. Ragle, and that of infectious diseases by Dr. Place are excellent. The presentation of the subject of tuberculosis by Dr. Hawes leaves little more to be desired. The last section of the book deals with the use of drugs, their preparations, doses, indications and contraindications. One can hardly agree that it is advisable to wait for the mixing of the drugs until everything is prepared and the needle inserted into the vein when arsphenamin is to be administered. The statement that leaching will reduce the size of the liver in cases of engorgement might also be challenged. All in all, however, the book is a commendable one and is of value, not only to the student, but also to the practitioner.

LA PSIQUIATRÍA DEL MÉDICO PRÁCTICO. Por el Dr. Antonio Fernández-Victorio y Cociña, Director del Manicomio de Ciempozuelos. Second edition. Paper. Pp. 407. Barcelona: Manuel Marín, 1922.

This book, by the director of the insane asylum of Ciempozuelos, Spain, is a summary of lectures delivered while he was professor of psychiatry in the Army Medical School. It is divided into three parts, devoted, respectively, to psychic functions, psychic symptoms and mental diseases or psychopathies. These are grouped into psychoneuroses, psychodysgenesias or pschyasthenias, manias, paranoias, toxicopathies and insanity in its diverse forms. In the first chapter, taking Richet's work as a guide, he tries to define mental activities, and especially consciousness and its mechanism. As it was to be expected in a book primarily intended for army medical officers, the author has taken great pains with the part dealing with physical and mental examinations of supposed insane patients. The last chapter of the book contains a brief review of present therapeutics. A remarkable omission is the lack of reference to shell shock.

PREVENTIVE MEDICINE AND HYGIENE. By Milton J. Rosenau, Professor of Preventive Medicine and Hygiene, Harvard. With chapters upon Sewage and Garbage, by George C. Whipple, Professor of Sanitary Engineering, Harvard; Vital Statistics, by John W. Trask, Assistant Surgeon-General, U. S. Public Health Service; Mental Hygiene, by Thomas W. Salmon, Medical Director, National Committee for Mental Hygiene, etc. Fourth edition. Cloth. Price, $10. Pp. 1567, with 194 illustrations. New York: D. Appleton & Company, 1921.

In the preparation of this edition, the entire text has been reset and several new subjects have been added. Among them are housing, rural sanitation, public health nursing, drug addiction, alcoholism, oral, ocular and personal hygiene, and a laboratory course in preventive medicine and hygiene. New articles are also included on Vincent's angina, deer-fly fever, leishmaniasis, encephalitis, yaws, psychoneuroses and war edema. The book is one of the most complete and authoritative textbooks available on this subject.

# Medicolegal

## Death Certificates and Privileged Communications

*(Bozicevich v. Kenilworth Mercantile Co. (Utah), 199 Pac. R. 406)*

The Supreme Court of Utah, in affirming a judgment for the defendant in this action brought to recover damages for the death of a boy, alleged to have been caused by his eating unwholesome ice cream sold by the defendant, holds that no error was committed in admitting the death certificate in evidence. The court says that a statute of the state provides that a death certificate shall be made and signed by the attending physician, and that he shall "state the cause of death so as to show the course of the disease or the sequence of causes resulting in death, giving the primary and immediate causes, and also the contributory causes, if any, and the duration of each." The matter of requiring death certificates comes directly within the police power of the state. To require a full statement of all the causes and complications, if any, conforms to a sound rule of evidence, in that it presents the whole case and not merely a fragmentary part. When the statements fully comply with the statute and are admitted in evidence, they may afford a protection to the attending physician as well as to those who may be interested in the cause of death. The statutory requirements tend to protect rights rather than otherwise. If, therefore, the legislature can make the statement of the immediate cause of death prima facie evidence, it can also make the primary and contributing causes prima facie evidence.

Nor does the admission as prima facie evidence of the facts stated in such a certificate contravene the statutory provision that "a physician or surgeon cannot, without the consent of his patient, be examined in a civil action, as to any information acquired in attending the patient which was necessary to enable him to prescribe or act for the patient." As the court views the matter, there is no irreconcilable conflict between these two statutory provisions, and both may stand and be enforced, though if there were an irreconcilable repugnance or conflict between the act creating the privilege and the provision of the act making a certified copy of the physician's certificate prima facie evidence of the facts therein stated, the latter, being the later enactment, must prevail. Be that as it may, there can be no doubt that the patient may still insist on his privilege; and the physician may not, without the patient's consent, testify to information that may have been imparted to him by the patient, or to such information as the physician may have received in attending the patient, if such information was necessary to enable the physician to prescribe or act for the patient. When death has overtaken the patient, however, and it becomes necessary for the public good that the cause of his death be made known, and that a public record be made thereof, then the privilege, to that extent, if it ever existed as against such a certificate, must yield to the public good.

## Confusion About Waiver of Privilege

*(Hethier v. Johns (N. Y.), 189 N. Y. Supp. 605)*

The Appellate Division of the Supreme Court of New York, Fourth Department, says that a great deal of confusion has arisen in the minds of members of the bar about the question as to whether or not a plaintiff in a personal injury case, by bringing his action and testifying as to his injuries and treatment, and by calling for the testimony of one of several physicians who attended him, waives as to the others the privilege conferred by Section 834 of the New York Code of Civil Procedure, there being a conflict in, and uncertainty regarding, the decisions on the subject. This court holds that, in such a case, when the physician called by the plaintiff as a witness was not present at the time when a physician offered by the defendant as a witness made his examination of the plaintiff, there was no waiver as to the latter physician. It does not seem to this court that the calling of one attending physician constitutes a waiver as to another physician who attended the party at a different time. It is not unreasonable to suppose that cases might arise in which a party would be willing to have one attending physician disclose all he knew about the patient's condition, when at the same time the party would be willing to forfeit all of the benefits which he might derive from his cause of action rather than have another attending physician disclose information which he had obtained in treating the party for the same injury.

## Evidence Required for Suspension of License

*(State ex rel. Johnson v. Clark et al. (Mo.), 232 S. W. R. 1031)*

The Supreme Court of Missouri says that the relator, a physician, was charged with being guilty of unprofessional and dishonorable conduct in having unlawfully produced a criminal abortion on a certain woman, and that the state board of health, after a hearing pursuant to notice, found him guilty as charged and ordered that his license to practice medicine and surgery in the state of Missouri be suspended for a period of five years. But that action of the respondents, who constituted said board, is quashed, and a judgment of the circuit court upholding such action is reversed, by the supreme court.

One contention of the relator was that there was a defect in that at no place in the record did it appear what members of the board, if any, were present at the meeting when the order suspending his license was made; nor was it shown that a majority of the members were present at such meeting, in compliance with the statutory requirements. However, the record of the proceedings had at the hearing on the charges showed that five out of the seven members of the board were present, and that the relator appeared at the hearing in person and by attorney. With regard to the meeting at which the license of the relator was ordered suspended, in the absence of evidence to the contrary, it was to be presumed that the members of the board, being public officers, discharged their duty regularly and properly, in accordance with the law, so that the presumption followed that, when the board acted, a majority of the members were present. But the supreme court does not agree with the contention of the respondents that the board, being merely an administrative or ministerial body, could consider evidence, make a finding, and render judgment thereon, when such evidence would admittedly have been inadmissible in a court of law. Such is not the supreme court's conception of what is consonant with the policy of the law. The statute under which the respondents acted has been held to be highly penal in its nature. Such being the case, it was to be construed strictly against the respondents and liberally in favor of the relator. Moreover, the respondents could not act arbitrarily, nor against the rules of evidence.

It was error to admit the testimony of another physician relative to a statement made by the woman as to the relator's having performed an abortion on her, the declaration not having been made under an impression of impending and immediate death. Under the rules of evidence, the statement would have been inadmissible in a criminal proceeding before a court; and this court sees no just reason (and finds no precedent to the contrary in Missouri) why a similar rule should not prevail in a hearing before the state board of health, when a valuable privilege, if not a property right, depends on the outcome of the hearing. To let down the bars and admit uncorroborated, hearsay testimony, which the record here disclosed constituted the only possible positive evidence on which the order of the board could be predicated, was not consistent with the practice which should be followed in inquiries of even a quasi-judicial nature. The entire record being before the supreme court for review, and a careful scrutiny thereof having revealed no evidence corroborative of the declaration of the woman, the court holds that the admission and the consideration of the testimony complained of were incompetent and prejudicial to the rights of the relator. The court also holds that error was committed in admitting the testimony of a physician that "there was a great deal of belief that this man [referring to the relator] did cause abortions"; and the testimony of still another physician that from conversations had by him with his

patients, he was positive that the relator had been producing abortions. While this court is in thorough sympathy with the laudable aim and purpose of the board of health to rid the medical profession of practitioners guilty of dishonorable conduct, the court must nevertheless accord to the accused every right given him by the law. To render a conviction bottomed on the veracity and competency of persons other than witnesses testifying under oath would be contrary to the established principles of all law.

# Current Medical Literature

## AMERICAN

Titles marked with an asterisk (*) are abstracted below.

### Annals of Surgery, Philadelphia

January, 1922, **75**, No. 1

New Mechanical Problems in Bronchoscopic Extraction of Foreign Bodies from Lungs and Esophagus. C. Jackson, Philadelphia.—p. 1.
*Surgical Treatment of Pernicious Anemia. J. M. Hitzrot, New York. p. 31.
Wound Excision and Early Reconstruction in Treatment of Compound Fractures. M. B. Tinker, Ithaca, N. Y.—p. 38.
Special Points in Technic of Operations on Thyroid. G. W. Crile and W. E. Lower, Cleveland.—p. 47.
*Surgery of Mediastinum. A. Schwyzer, St. Paul, Minn.—p. 53.
*Life Expectancy Following Radical Amputation for Carcinoma of Breast. W. E. Sistrunk and W. C. MacCarty, Rochester, Minn.—p. 61.
Transverse Abdominal Incision. W. J. Moore, Glasgow, Scotland.—p. 70.
*Acute Intestinal Obstruction. J. O'Conor, Buenos Aires.—p. 81.
*Rectal and Vesical Incontinence Relieved by Operation. J. G. Sheldon and E. P. Heller, Kansas City, Mo.—p. 89.
Secondary Foci of Tuberculosis in Spine in Pott's Disease. C. W. Peabody, Boston.—p. 95.
*Posture and Cervical Rib Syndrome. T. W. Todd, Cleveland.—p. 105.
*Intra-abdominal Operation for Femoral Hernia. G. P. LaRoque, Richmond, Va.—p. 110.

**Splenectomy for Pernicious Anemia.**—Hitzrot's experience covers seven cases of splenectomy done for pernicious anemia, with three improved for periods of from one to four years, three cases in which death resulted within a year following the operation, and one case too recent to state the final outcome. Hitzrot pleads for early operation, if operation is considered at all, as the early cases do much better than those in which splenectomy is done as a last resort.

**Infection of Anterior Mediastinum.**—Purulent infections of the anterior mediastinum apart from direct trauma Schwyzer states are mostly due to a breaking down of lymph glands or to the advance of an abscess which started in the neighborhood. Of each of these two conditions he has seen one example. One was an abscess along the pericardium on the right side. It originated from a tuberculous condritis of the fourth, fifth and sixth ribs. The second case was a lymph gland abscess, taking its origin from what seemed to be one of the right peritracheobronchial glands.

**Life Expectancy Following Radical Operation for Breast Cancer.**—By studying the results obtained in 218 cases Sistrunk and MacCarty found that 51.8 per cent. of the patients operated on, one of each two patients, were living three years after operation. Seventy-five and six-tenths per cent. of the patients without glandular involvement, three of each four patients, were living at the end of three years, and 36.6 per cent. of the patients with glandular involvement, about one of each three patients, were alive at the end of three years. Thirty-nine per cent. of the patients, about two of each five patients, were alive at the end of five years. Sixty-five and one-tenth per cent. of the patients without glandular involvement, about six of each ten patients, were alive at the end of five years, and 21.9 per cent. of the patients with glandular involvement, about one of each five patients, were alive at the end of five years. Thirty-six and seven-tenths per cent. of the patients, about one of each three patients, 63.9 per cent. of the patients without glandular involvement, about six of each ten patients, and 18.9 per cent. of the patients with glandular involvement, about one of each five patients, were living from five to eight years after operation. After eight years the disease rarely recurs. Carcinomas which developed during pregnancy and during the lactating period invariably proved fatal within five years after operation. Diffuse carcinomas which involved practically the entire breast caused death in every instance within five years. When the axillary glands were involved, carcinomas around the nipple proved fatal in seventeen of eighteen patients (94.5 per cent.) within five years. Seventeen of twenty patients with ulcerating carcinomas (85 per cent.) were dead at the end of seven years; fourteen died within five years after operation. Age seems to have a definite bearing on the results to be expected following operation. Forty-one and seven-tenths per cent. of the patients over 50 are alive from five to eight years after operation, while only 31.8 per cent. of those under 50 have lived a corresponding time. The prognosis has not been affected by the complete removal of small growths for microscopic diagnosis before the radical operation is performed. When local recurrences were found following operation, metastasis was demonstrated in other regions in 60.9 per cent. of the cases, or in six of each ten patients. Nearly all patients who had recurrences following operation died from the disease.

**Acute Intestinal Obstruction.**—O'Conor discusses enterectomy, partial excision, inclusion, postappendical incidence and treatment of stumps.

**Operation for Rectal and Vesical Incontinence.**—In this case Sheldon and Heller provided a rectal sphincter from flaps of the glutei maximi and relieved the incontinence by restoring the bladder which was held in high position by a patent urachus to its normal position in the pelvis.

**Posture and Cervical Rib Syndrome.**—Todd asserts that it is possible to produce the cervical rib syndrome experimentally by posture alone. Since this is the case it may be the explanation of some instances at least of the disease occurring in the absence of anomalies at the cervicothoracic junction.

**Intra-Abdominal Operation for Femoral Hernia.**—This operation was described in THE JOURNAL, Dec. 6, 1919, p. 1802. LaRoque discusses it further.

### Archives of Internal Medicine, Chicago

January, 1922, **29**, No. 1

*Motor Phenomena Occurring in Normal Stomachs, in Presence of Peptic Ulcer and Its Pain, as Observed Fluoroscopically. L. Reynolds and C. W. McClure, Boston.—p. 1.
*Clinical Observations on Capillary Circulation. S. O. Freedlander and C. H. Lenhart, Cleveland.—p. 12.
*Protein Requirement in Tuberculosis. W. S. McCann, New York.—p. 33.
*Use of Quinidin in Auricular Fibrillation. J. A. E. Eyster and G. E. Fahr, Madison, Wis.—p. 59.
*Tuberculosis of Heart. E. Weiss, Philadelphia.—p. 64.
*Observations Following Intravenous Injections of Hypertonic Salt Solutions in Cases of Neurosyphilis. J. Wynn, Boston.—p. 72.
Metabolic Study of Progressive Pseudohypertrophic Muscular Dystrophy and Other Muscular Atrophies. R. B. Gibson, F. T. Martin and M. V. R. Buell, Iowa City.—p. 82.
Nitrogen Requirement for Maintenance in Diabetes Mellitus. P. L. Marsh, L. H. Newburgh and L. E. Holly, Ann Arbor, Mich.—p. 97.
*Mycotic Embolic Aneurysms of Peripheral Arteries. de W. G. Richey and W. W. G. MacLachlan, Pittsburgh.—p. 131.

**Motor Phenomena of Stomach.**—From the clinical standpoint the most important feature of the work presented by Reynolds and McClure is considered to be the fact that the usual disappearance of abnormal motor phenomena occurring simultaneously with the cessation of pain gives an objective means of judging the effects of therapeutic measures.

**Circulation in Capillaries.**—Observations on the capillary circulation in many clinical conditions were made by Freedlander and Lenhart by Lombard's method. The effect of reflex vasomotor stimuli on the capillary circulation were observed, corroborating the blood flow experiments of Stewart. In three cases of primary traumatic shock and one case of surgical shock, stasis was observed in the skin capillaries. Capillary stasis was observed in several cases of septicemia in which there was a sudden collapse. Capillary stasis also occurs in cardiac decompensation and may be of some value in differentiating the preponderant factor in cardiorenal diseases. In some cases of hypertension, there was a granular, intermittent capillary flow.

**Protein Requirement in Tuberculosis.**—In nine of the ten tuberculous patients studied by McCann the minimal urinary nitrogen excretion observed was between 2.5 and 4.5 gm. per diem, and between 0.041 and 0.093 gm. per kilogram per diem. In one case the lowest excretion of urinary nitrogen was 9.4 gm. per diem, or 0.267 gm. per kilogram. In the nine cases with a minimal nitrogen excretion the diet given had an energy value from 1.1 to 2.4 times the basal energy requirements of the subjects, and furnished 39 to 70 per cent. of the calories in the form of carbohydrate. McCann found that in some cases it is possible to maintain nitrogen balance, and even to retain nitrogen, when from 37 to 44 gm. protein are ingested, of which about one half is from animal sources. The attainment of nitrogen equilibrium with such a small amount of protein is dependent on the ingestion of large amounts of carbohydrate and fat, sufficient to make the total caloric value of the diet from 1.7 to 2.4 times the basal energy requirement. It is probable that the failure to establish nitrogen balance on such protein diets is due to failure or inability of the subject to ingest sufficiently large quantities of carbohydrate and fat, rather than that it is due to an inherently large wear and tear quota in tuberculosis. Positive nitrogen balance in bed patients may be attained by the ingestion of from 60 to 90 gm. protein when the diet contains carbohydrate and fat, with a total caloric value of less than 1.7 times the basal requirement. The evidence indicates that the optimal quantity of protein for patients who are confined to bed with pulmonary tuberculosis, lies between the limits of 60 to 90 gm. per diem, when the caloric value of the diet is about 2,500 calories. Additional carbohydrate and fat calories must be furnished when patients are allowed to exercise.

**Quinidin in Auricular Fibrillation.**—Eyster and Fahr record their experience in the use of quinidin in two cases of auricular fibrillation. One case brings out a point which has not been emphasized sufficiently, namely, the danger in the use of this drug in certain cases. The other case illustrates the strikingly favorable action of quinidin in the rather rare condition in which auricular fibrillation is uncomplicated by advanced valvular or myocardial damage and in which no serious break in compensation has occurred.

**Tuberculosis of Heart.**—The clinical and necropsy findings of two men who had heart tuberculosis are recorded by Weiss. Symptoms and physical signs were vague; necropsy demonstrated an immense, fibrocaseous tuberculous involvement of the lymph nodes of the thorax, with extension to the pericardium and in the one case to the heart muscle, causing tremendous enlargement of the organ. Reference to the literature indicates that the heart involvement is almost always secondary to the disease of the mediastinal lymph nodes.

**Intravenous Injections of Salt Solution in Neurosyphilis.**—Intravenous injections of 200 c.c. of 15 per cent. salt solution were given by Wynn to six patients with neurosyphilis, with resulting disagreeable but not alarming symptoms. In these cases the cerebrospinal fluid pressure was found to rise sharply and then to fall, reaching a point about 100 mm. below the original level by thirty minutes after the end of the salt injection. Such injections did not have any therapeutic value.

**Embolic Aneurysms of Peripheral Arteries.**—A comparison of the salient features of the two cases reported by Richey and MacLachlan shows that in both an aneurysm of a peripheral artery occurred, one in the superior mesenteric and the other in the posterior tibial artery. Both were associated with a definite acute and subacute vegetative endocarditis of the mitral or aortic valves. In one case infarcts were found in the spleen and kidneys. Streptococcus salivarius was isolated from the blood stream of one case during life. Unfortunately, the sudden death of the other case prohibited antemortem cultures, while the necropsy cultures, taken twenty-four hours after death, showed only secondary invaders. No suggestion of syphilis was found in either case at necropsy. Both aneurysms had ruptured, at first slowly, with the formation of a false aneurysm. Clinically the rupture of the aneurysms was characterized by severe, sudden, lancinating pain, which persisted. From the evidence at hand, it seems clear that both aneurysms had their beginning in the bacteria-laden embolus which was swept off the affected heart valve, lodging at the bifurcation of the artery involved.

## Arkansas Medical Society Journal, Little Rock

January, 1922, **18**, No. 8

Difficulties and Superstitions Encountered in Practice Among Negroes. S. W. Douglas, Eudora.—p. 155.
Management of Chronic Nephritis—Report of Cases. G. E. Tarkington, Hot Springs.—p. 158.

## Canadian Medical Association Journal, Toronto

January, 1922, **12**, No. 1

Pregnancy and Tuberculosis. D. A. Stewart, Winnipeg.—p. 1.
Methods of Study of Early Diabetes. J. J. R. Macleod, Toronto.—p. 4.
Comparative Study of Measles and German Measles. D. G. Campbell and E. V. Murphy, Montreal.—p. 7.
Technic of Cataract Operations. C. Campbell, Toronto.—p. 10.
Etiology of Infantile Eczema. H. P. Wright, Montreal.—p. 12.
Some New Anesthetic Ethers (Cotton Process Ether; Ethanesal). W. Webster, Winnipeg.—p. 15.
Sodium Citrate Technic for Blood Transfusion. C. K. P. Henry, Montreal.—p. 17.
Hour-Glass Stomach. A. Moir, Peterborough.—p. 20.
Two Cases of Supernumerary Ureters Opening Intravesically. H. I. Palmer, Toronto.—p. 25.
*Psychosis of Hysterical Type. C. A. Baragar, Winnipeg, Man.—p. 30.
Treatment of Chronic Nephritis. A. H. Gordon, Montreal.—p. 32.
Acute Poliomyelitis. F. H. Mackay, Montreal.—p. 34.

**Psychosis of Hysterical Type.**—Baragar cites the case of a girl, aged 17, who exhibited hysterical phenomena in the physical field, the most interesting of which was a complete functional blindness, and in the mental field a psychosis characterized by delusions and simple visual hallucinations at first, but later by an apparent dementia with inaccessibility, defective contact with environment, undue suggestibility, somewhat similar to catatonia, but differentiated by a peculiar variability of depth—a psychosis of hysterical type.

## Colorado Medicine, Denver

January, 1922, **19**, No. 1

Addison's Disease. L. W. Bortree, Colorado Springs.—p. 2.
Diagnosis and Treatment of Gallbladder Disease. J. R. Espey, Trinidad.—p. 5.
Extra-Uterine Gestation. H. R. Bull, Grand Junction.—p. 9.
Postgraduate Study Conditions Abroad. C. T. Burnett, Denver.—p. 12.
Subcutaneous Method of Vaccination Against Smallpox. F. S. Spearman, Rifle.—p. 13.

## Iowa State Medical Society Journal, Des Moines

January, 1922, **12**, No. 1

Passing of Medical Practitioner. C. P. Howard, Iowa City.—p. 1.
Focal Infections of Nose and Throat. L. W. Dean, Iowa City.—p. 6.
Focal Infection of Mouth, Teeth and Maxillary Bones in Relation to Systemic Disease. C. W. Harned, Des Moines.—p. 10.
Gastro-Intestinal Infections. M. B. Galloway, Webster City.—p. 13.
Focal Infection in Genito-Urinary Tract. J. S. McAtee, Council Bluffs.—p. 15.

## Journal of General Physiology, Baltimore

January, 1922, **4**, No. 3

Inactivation of Trypsin. I. J. H. Northrop, New York.—p. 227.
Id. II. Equilibrium Between Trypsin and Inhibiting Substance Formed By Its Action on Proteins. J. H. Northrop, New York.—p. 245.
Id. III. Spontaneous Inactivation of Trypsin. J. H. Northrop, New York.—p. 261.
Direct and Indirect Determinations of Permeability. W. J. V. Osterhout, Cambridge, Mass.—p. 275.
Studies on Bioluminescence. XIV. Specificity of Luciferin and Luciferase. E. N. Harvey, Washington, D. C.—p. 285.
Effects of Radium Rays on Metabolism and Growth in Seeds. A. C. Redfield and E. M. Bright, Boston.—p. 297.
Correspondence of Skin Pigments in Related Species of Nudibranchs. W. J. Crozier, New Brunswick, N. J. —p. 303.
Physiology of Respiration of Fishes in Relation to Hyrogen Ion Concentration of Medium. E. B. Powers, Lincoln, Neb.—p. 305.
*Effect of Iodin and Iodothyrin on Larvae of Salamanders. IV. Rôle of Iodin in Inhibition of Metamorphosis of Thymus-Fed Salamanders. E. Uhlenhuth, New York.—p. 319.
*Influence of Feeding Anterior Lobe of Hypophysis on Size of Amblystoma Tigrinum. E. Uhlenhuth, New York.—p. 321.
Temperature Coefficient of Phagocytosis. W. O. Fenn, Boston.—p. 331.
Penetration of Cations into Living Cells. M. M. Brooks, Washington, D. C.—p. 347.
Origin of Electrical Charges of Colloidal Particles and of Living Tissues. J. Loeb, New York.—p. 351.

**Growth Inhibition Not Caused by Iodin Deficiency.**—The experiments made by Uhlenhuth show that the substances which are deficient in the food of thymus-fed salamander larvae are not identical with iodin. Feeding iodin to these animals did not stimulate growth. The fault evidently is not a deficiency of the thymus in iodin, but a deficiency in certain substances, as yet unknown.

**Influence of Anterior Lobe of Pituitary on Growth.**—It is apparent from Uhlenhuth's experiments that animals of the species *Ambystoma tigrinum* when fed pituitary anterior lobe can reach a size far in excess of that of animals fed earthworms and presumably also of that of liver fed animals. Liver produces a rate of growth as high as that resulting from anterior lobe feeding, but maintains growth only, until the animals reach a definite size far below that of anterior lobe fed animals.

## Journal of Infectious Diseases, Chicago

January, 1922, **30**, No. 1

Study of Colony Formation in Deep Agar: Studies on Pathogenic Anaerobes. VI. H. H. Heller, San Francisco.—p. 1.
Genus Nicolaierillus (B. Tetani): Studies on Pathogenic Anaerobes. VII. H. H. Heller, San Francisco.—p: 18.
Mutations in Genus Nicolaierillus (B. Tetani): Studies on Pathogenic Anaerobes. VIII. H. H. Heller, San Francisco.—p. 33.
*Effect of Roentgen Ray and Mustard Gas (Dichlorethylsulphid) on Active Anaphylaxis in Guinea-Pig. H. J. Corper; L. T. Black and M. Moore, Denver.—p. 50.
Cultivation of Tubercle Bacilli. E. L. Goodman and M. Moore, Denver. —p. 58.
*Spirochetal Organisms in Tissues in Acute Yellow Atrophy of Liver. N. Hayashi and T. Kibata, New York.—p. 64.
Johne's Disease (Chronic Dysentery in Animals, Paratuberculosis) and Its Detection. B. A. Beach and E. G. Hastings, Madison, Wis.—p. 68.
Study of Streptococci from Post-Gonorrheal Prostatitis by a Quantitative Method of Agglutination and Absorption. R. D. Herrold, Chicago.—p. 80.
*Susceptibility of Rabbits to Virus of Measles. Inoculations with Nasopharyngeal Material. M. Grund, New York.—p. 86.
Spontaneous Chronic Meningo-Encephalitis of Rabbits. J. Oliver, San Francisco.—p. 91.
Buffered Physiologic Solution of Sodium Chlorid. A. C. Evans, Washington, D. C.—p. 95.
*Infection of Meninges and Lungs by Species of Actinomyces. H. H. Bell, St. Louis.—p. 99.
*Anaphylatoxin and Anaphylaxis. XII. Studies on Chemistry of Blood. W. M. German, Ann Arbor, Mich.—p. 107.
*Pathogenicity of Bacillus Botulinus. P. F. Orr, Boston.—p. 118.
Classification of Streptococci. E. Fisk and E. L. Burky, Philadelphia. —p. 128.

**Effect of Roentgen Ray and Mustard Gas on Anaphylaxis.**—Corper and his associates found that in guinea-pigs a maximum nonlethal dose of roentgen ray given seven days before or coincident with the sensitizing injection of egg white or normal horse serum, or seven days before or with the second injection, causes no appreciable ameliorating influence on the reaction resulting from the second injection of these proteins. Likewise, repeated moderate roentgen-ray treatments, sufficient to maintain a low level of the peripheral circulating leukocytes, about 2,000 leukocytes per cm.m. throughout the incubation period, or very small repeated treatments not noticeably affecting the number of peripheral circulating leukocytes, has no appreciable ameliorating effect on the severity of the anaphylactic reaction. A slight increase in the severity of the reaction was noted, however, especially in guinea-pigs given the second or exciting injection of protein when the roentgen ray had exerted a profound influence on the hematopoietic system as indicated by the level of the leukocytes. As pointed out by Corper in the case of thorium X and anaphylaxis, this result may be due to the intoxication with the roentgen ray coincidently with the anaphylactic reaction. Subcutaneous injections of mustard gas in maximum nonlethal doses given seven days before or coincident with the sensitizing injection of egg white or normal horse serum, or seven days before, or with the second injection, are without appreciable inbuence on the reaction resulting from the second injection of these proteins. Likewise, repeated small or medium doses administered throughout the incubation period, being initiated a few days before the first protein injection, are without appreciable effect.

**Spirochetal Organisms in Liver in Acute Yellow Atrophy.**—In the course of their study of a typical case of acute yellow atrophy of the liver Hayashi and Kibata demonstrated the occurrence of a species of spirochete in the tissues. While the definite etiologic relation of the organism to the disease could not be determined, the parallelism existing between the abundance of the organism and severity of the lesion suggested the probability of such a relation.

**Experimental Measles.**—The nasopharynx of patients in the early eruptive, or preeruption stage of measles was irrigated by Grund with from 30 to 50 c.c. of physiologic solution of sodium chlorid. Cultures were made from the material thus obtained, on blood-vitamin-agar to establish the prevalent types of bacteria. From 5 to 10 c.c. of the washings were injected into the trachea of rabbits, the animals being lightly anesthetized. The majority of rabbits gave a certain reaction. The least reliable and constant symptom seems to be the enanthem; while present in about 20 per cent. of the cases, only five animals showed what might be described as good typical Koplik spots. In some of the cases a certain relationship appeared between the temperature curve, the cutaneous symptoms and the leukocyte count; however, it was far from constant, and the fluctuations noted in daily blood counts made for one week before inoculation do not make a "leukopenia" seem a very dependable diagnostic sign in rabbits. In a number of animals a distinct polychromatophilia was noted. Conjunctivitis and inflammation of the upper respiratory passages, in varying degrees of severity, occurred in 70 per cent. of animals. Desquamation, either branny or flaky, occurred in all but four animals after the rash and was noted three times in cases in which no rash had been noted. Three animals with marked erythema died before desquamation occurred. Passage experiments from rabbit to rabbit were unsuccessful when nasal discharges were used. Successful inoculations were made with blood and a suspension of lung tissue from severe and fatal cases. The reactions obtained in rabbits inoculated with the fifth transfer of such cultures indicated at least that the virus remains alive and virulent at 37 C. for twenty-four days. The results obtained by reinoculating convalescent animals have thus far been rather contradictory, and frankly sucessful in only two cases.

**Infection of Meninges by Actinomyces.**—The organism isolated by Bell did not produce aerial hyphae or knoblike terminations of the filaments, and liquefied gelatin. It was gram-positive and grew best aerobically and well at room temperature. Under the classification given by Silberschmidt, it resembles 1a. It differs from *Actinomyces bovis* in that it grows better under aerobic conditions and well at room temperature; from *Actinomyces asteroides* of Eppinger in that it liquefies gelatin; from the actinomyces of Almquist in that it does not possess arerial hyphae, and from the actinomyces of Ferré et Faguet in that it does not show knoblike terminations of the mycelia. It furthermore differs in other details.

**Anaphylatoxin and Anaphylaxis.**—In the production of anaphylatoxin in vitro, in serum, or in plasma, German states there is no demonstrable disturbance in the alkaline reserve as shown by the Van Slyke plasma bicarbonate method. Likewise micro determinations of blood ammonia showed no variations in this constituent in anaphylatoxic serums as compared with normal serums. In experimental anaphylaxis, either specific or nonspecific, no disturbance in the alkaline reserve could be demonstrated. Further, in these conditions, no variations in the blood ammonia could be detected. The conclusion that suggests itself is that the alkaline reserve is not involved in any demonstrable manner in the phenomenon of anaphylatoxin production and aaphylaxis. These results are corroborative of those obtained in the study of amino-nitrogen in relation to anaphylatoxin. Therefore, the general conclusion to be drawn is that anaphylatoxin production is not accompanied by changes in amino-nitrogen, in blood ammonia, or in the alkaline reserve.

**Pathogenicity of Bacillus Botulinus.**—Orr states that experimental botulism can be produced in laboratory animals by the feeding or injection of massive quantities of toxin-free spores of *B. botulinus*. The presence of toxin produced in the body as a result of growth of toxin-free spores in the body can be demonstrated by the precipitin test as well as by direct toxicity tests. Botulism poisoning in man due to

the ingestion of spores is probably very rare, if it occurs at all. The possibility of such occurrence must, however, be considered.

## Journal of Laboratory and Clinical Medicine, St. Louis

January, 1922, **7**, No. 4

Basal Metabolism Determination and Its Technical Difficulties. H. M. Jones, Chicago.—p. 191.
*Influence on Spore Formation of Sealing Bacterial Cultures. L. Florence, Princeton, N. J.—p. 199.
*Elimination of Molds from Butter. I. W. Mendelson, A. E. McCoy and A. G. Long, Grand Forks, N. D.—p. 208.
Synthesis of Arsphenamin and a Study of Some of Its Intermediate Derivatives. C. N. Myers, New York City.—p. 215.
*Pharmacologic Activity of Drug Store Samples of Infusion of Digitalis, U. S. P. IX. A. R. Bliss, Atlanta, Ga.—p. 225.
*Chronic Nephritis with an Unusual Degree of Nitrogen Retention. E. Weiss and V. C. Garner, Philadelphia.—p. 229.
*Mercuric Chlorid Poisoning with Recovery; Urea Concentration Test. E. H. Funk and E. Weiss, Philadelphia.—p. 233.

**Influence on Spore Formation of Sealing Cultures.**—Florence found that sealing cultures retarded the formation of spores and killed the majority of the vegetative forms of the aerobes and facultative anaerobes but not of the obligatory anaerobes. It affected the vegetative growth of obligatory aerobes more rapidly and intensely than that of facultative anaerobes. It did not apparently affect the growth of obligatory anaerobes as compared with that in unsealed culture tubes containing a small piece of sterile tissue.

**Eliminating Molds from Butter.**—After two years' study, Mendelson, McCoy and Long are led to say that by careful, efficient operation of the pasturizer and cooling system it is possible to produce commercially a good quality of butter of low bacterial content and quite free from molds at the time it is churned.

**Activity of Digitalis Infusion.**—Fifteen samples of infusion of digitalis, selected at random from retail pharmacies, were examined by Bliss. They showed an average activity of but 46.26 per cent. of the theoretical activity calculated from the amount of standardized drug supposedly used in the manufacture of the infusion. Five of the fifteen samples, prepared by a method that is frowned upon by the medical and pharmaceutical professions (simple dilution of the fluidextract), showed an average activity of 62.6 per cent.; of 16.34 per cent. stronger than the average for the total fifteen samples, and 24.5 per cent. stronger than the ten samples supposedly prepared by the U. S. P. IX method. The ten samples manufactured according to the method of the U. S. P. IX showed an average activity of but 28.1 per cent.

**Unusual Nitrogen Retention in Chronic Nephritis.**—A case is presented by Weiss and Garner of severe chronic nephritis in a young man, which ran a short, fatal course. There was no definite etiologic factor and the thought was suggested that there may have been a congenital basis. The case was marked by an unusual degree of nitrogen retention in the various fluids and tissues of the body. The urea was found rather uniformly distributed and approximately equal to that of the blood (304 mg. per hundred c.c.).

**Mercuric Chlorid Poisoning with Recovery.**—A case of mercuric bichlorid poisoning with recovery following intensive eliminative treatment, is presented by Funk and Weiss. Functional studies include the urea-concentration test which has been found of more value in the study of chronic nephritis but in the present instance, as an interesting side light, furnished information as to the comparative innocuousness of administered urea. If the urea-concentration test is to be more generally adopted this observation is of importance.

## Journal of Pharmacology and Experimental Therapeutics, Baltimore

January, 1922, **18**, No. 6

Toxicity of Blood of Suprarenalectomized Frogs. C. H. Kellaway, Oxford, England.—p. 399.
*Uterine Effects of Intravenous Injections of Fluids. H. G. Barbour and F. H. Rapoport, New Haven, Conn.—p. 407.
Mode of Action of Potassium on Isolated Organs. A. J. Clark, London.—p. 423.
*Scopolamin-Morphin Narcosis. W. S. Van Leeuwen and A. Von Szent Gyorgy, Leiden, Holland.—p. 449.
Relation of Histamin to Intestinal Intoxication. I. Presence of Histamin in Human Intestine. J. Meakins and C. R. Harington, Edinburgh.—p. 455.
*Effects of Some New Local Anesthetics. (Para-Aminobenzoyl Dinormal Butyl-Amino Ethanol and Propanol; and Diethyl Amino-Propyl Diphenyl Amino-Carbinol). M. L. Bonar and T. Sollmann, Cleveland.—p. 467.

**Uterine Effects of Intravenous Injections.**—Barbour and Rapoport found that after intravenous injections the tone of the uterus is especially affected by those changes in the blood which would promote alteration in the fluid content of the uterine muscle.

**Scopolamin-Morphin Narcosis.**—Monkeys were used by Van Leeuwen and Gyorgyi in these experiments because they felt that the results obtained in these animals would be in a closer connection to conditions in the human body, while the monkeys were sensitive to doses of from 5 to 10 mg. morphin, given subcutaneously, they were very insensitive to scopolamin, doses of 200 mg. given subcutaneously not producing any visible effect. A dose of 500 mg. given to one animal proved to be fatal. Scopolamin does not augment the action of morphin on the monkeys as far as concerns the external symptoms produced by this drug.

**Effects of New Local Anesthetics.**—Three synthetic anesthetics were compared by Bonar and Sollmann with cocain and procain from the standpoint of efficiency and side actions. Amino-benzoyl dibutyl amino propanol hydrochlorid ("H") was found to produce complete anesthesia on surface application to mucous membranes, concentrations about one half those of cocain, one-tenth those of procain; or about the same as holocain. It has the important advantage of being nonirritant. It does not affect the blood vessels materially, and can be used with epinephrin. On direct application to sensory nerves and on intracutaneous injection, the effective concentrations are about one half those of cocain or procain; but its toxicity is about the same as that of cocain, or perhaps, even somewhat higher; and therefore, considerably higher than that of procain. The compound therefore holds out promise of usefulness for anesthesia of intact mucous membranes, especially in the eye. For injection methods, it has probably no serious advantage over the less toxic procain. Amino-benzoyl dibutyl amino ethanol hydrochlorid ("G") is not quite as effective as the "H," as an anesthetic; and is almost as toxic. It produces considerable irritation which would render it less desirable. Ethyl-amino-propyl-diphenyl amino carbinol ("III") is distinctly less anesthetic than the others; it is about equally toxic, and so much more irritant that its use would be undesirable.

## Kansas Medical Society Journal, Topeka

January, 1922, **22**, No. 1

*New Technic for Leg Amputation. T. G. Orr, Kansas City.—p. 1.
How to Make County Medical Society Attractive and Helpful. E. E. Liggett, Oswego.—p. 2.
Importance of Good Office Equipment and Hospital Facilities for Practice of Specialties. G. P. McCoy, Neodesha.—p. 5.
Cooperative Collections and Protection Against Deadbeats. W. E. McVey.—p. 7.

**New Technic for Leg Amputation.**—The technic devised by Orr is chiefly for amputation in the middle third, although it may be used higher or lower in the leg or even in the thigh. Long anterior and short posterior flaps are made. In making the anterior flap the deep fascia is included. This is dissected back at least 3 cm. beyond the point where the tibia is to be divided. The posterior flap is quite short and is dissected free for a short distance only. From the edge of the posterior flap the skin and fat are dissected downward and a flap of fascia is freed of sufficient length to turn upward over the cut end of the stump. The muscles are then divided 2 or 3 cm. below the point at which the tibia is to be amputated. The cut muscles are retracted and the tibia and fibula sawed across. The fibula is cut at least 1 cm. shorter than the tibia. Either before or after the bones are severed the periosteum is carefully removed about the cut ends for a distance of 0.5 cm. and the marrow is scooped out. The tibial crest is then removed for 2 or 3 cm., so that there will be no sharp points or edges beneath the anterior flap. Sharp

or rough edges, if there be any, are made smooth by rongeur or coarse file. The nerves are then carefully freed, drawn out of the stump as far as possible, and injected with absolute alcohol. The nerve is then divided just below the injected point. This prevents the formation of neuroma to a greater extent than any of the other usual methods or nerve end treatment. All bleeding vessels are carefully ligated. The entire mass of muscles is brought together with one strong purse-string chromic suture, which suture crosses over the anterior beveled portion of the tibia. Additional sutures may be placed when necessary to fix the muscles together properly. If the mass of muscle appears too bulky and is likely to produce a bulbous stump, small portions of it may be excised. The muscles should have been left long enough so that when the purse string is drawn, the cut end of the bone will be slightly shorter than the muscle. Muscle flaps are not made. The already formed posterior fascial flap (which may have with it some of the thinned out portion of the calf muscle tendons) is turned forward and sutured over the end of the entire stump. Sutures are placed through this flap and well into the muscle beneath. The anterior flap is then turned down and the fascia sutured in a few places. This gives two layers of fascia over the end of the bone. The skin is then very carefully closed, shaping the flaps to fit.

## Kentucky Medical Journal, Bowling Green

January, 1922, **20**, No. 1

Study of Gallbladder by Lyon-Metzer Method. C. Pope, Louisville.—p. 2.
Lyon-Metzer of Diagnosis of Gallbladder and Bile-Duct Diseases. J. T. McClymonds, Lexington.—p. 8.
Application of Biologic Agents in Diagnosis, Prevention and Treatment of Contagious Diseases. J. F. Anderson, New Brunswick, N. J.—p. 17.
Inherited Spinal Paraplegia, Case Report. J. W. Moore, Louisville.—p. 25.
Stone in Upper Urinary Tract. O. Grant, Louisville.—p. 28.
Diagnosis of Urologic Diseases. W. T. Briggs, Lexington.—p. 31.
Diagnosis and Pathology of Bladder Tumors. H. Bronner, Louisville.—p. 34.
Uterine Fibromata: Ascites. Case Report. B. C. Frazier, Louisville.—p. 42.
Young Man in Medicine. S. R. Roberts, Atlanta, Ga.—p. 43.
Differential Diagnostic Value of Different Degrees of Positiveness of Wassermann Reaction with Use of Cholesterol Antigens. J. D. Allen, Louisville.—p. 46.
Syphilis of Nervous System. C. B. Willmott, Louisville.—p. 49.
Preventive Medicine. B. C. Frazier, Louisville.—p. 57.
Amebic Dysentery: Case Report. G. S. Hanes, Louisville.—p. 65.
Syphilitic Destruction of Bone and Soft Parts: Case Report with Comments. W. J. Young, Louisville.—p. 67.
Traumatic Neurosis. W. E. Gardner, Louisville.—p. 69.
Duodenal Ulcer in Negro, Case Report. L. W. Frank, Louisville.—p. 74.
Blood Pressure. H. K. Orsborn, Owensboro.—p. 76.

## Missouri State Medical Association Journal, St. Louis

January, 1922, **19**, No. 1

*Vertigo. L. M. Sellers, Kansas City.—p. 1.
Surgery of Gallbladder. L. Rassieur, St. Louis.—p. 6.
*Differentiation and Treatment of Carcinoma and Sarcoma of Colon. C. Potter, St. Joseph.—p. 8.
Epiphysitis of Femur in Children. F. D. Dickson, Kansas City.—p. 16.
Use of Roentgen Rays in Diagnosis of Chest Complications. E. H. Kessler, St. Louis.—p. 19.
Roentgen-Ray Study of 500 Medical Cases for Paranasal Sinus Infection. R. L. Diveley, St. Joseph.—p. 21.
*Disturbed Pituitary Function Associated with Sphenoidal Sinus Abscess. F. M. Lowe, Kansas City.—p. 23.
Status Lymphaticus as Factor in Nose and Throat Surgery. E. L. Myers, St. Louis.—p. 25.
Factors of Safety in Surgery. M. G. Seelig, St. Louis.—p. 27.
Case of Adult Poliomyelitis with Respiratory Paralysis. R. P. Dorris, Jefferson City.—p. 31.
Case of Weil's Disease. G. S. Cannon, Fornfelt.—p. 32.

**Vertigo.**—Sellers points out that all cases of true vertigo with associated symptoms are due to lesions of the semicircular canals, or their tracts to or within the central nervous system. The lesion is in most cases (intracranial new growths excepted) secondary to some general systemic affection. When located within the labyrinth or involving the eighth nerve trunk, all responses from that side are similarly affected; e. g., hearing is diminished; the vertigo, falling, and nystagmus are toward, and the past-pointing away from the affected side in irritative lesions, and vice versa in destructive lesions. In vestibular lesions, absence of the spontaneous equilibritory symptoms at the time of examination is very likely, as compensation quickly occurs. The presence of only part of these symptoms is nearly always due to a central lesion as it is only after the break-up of the pathways that such can happen.

**Carcinoma and Sarcoma of Colon.**—Embodied in Potter's report are seven cases of carcinoma and two of sarcoma of the colon, classified as follows: Carcinoma—cecum, and ascending colon, 1 each; transverse colon, 2; splenic flexure, 1; sigmoid, 2. Sarcoma—ascending and transverse colon, 1 each.

**Pituitary Dysfunction in Sphenoid Sinus Infection.**—Moderately definite manifestations of pituitary dysfunction, clinically, with brain and meninges normal, postmortem, and the presence of an abscess in the sphenoidal sinus, Lowe asserts, speak for the reaction of the hypophysis to an inflammation closely adjacent. In the case reported by him, the postmortem finding of an unsuspected abscess involving the sphenoidal sinus was a surprise. Signs of dysfunction of the pituitary body were the only symptoms manifested during the life of the patient.

## Northwest Medicine, Seattle

January, 1922, **21**, No. 1

Atrophic Pyelonephritis. W. F. Braasch, Rochester, Minn.—p. 1.
Suprapubic Versus Perineal Prostatectomy. F. Hinman, San Francisco.—p. 5.
Principles of Prostatectomy. A. E. Rockey, Portland, Ore.—p. 9.
Backache of Renal Origin. A. H. Peacock, Seattle.—p. 12.
*Benzyl Benzoate in Cases of Bladder Distension. W. J. Stater and D. M. Vickers, Boston.—p. 17.
Average Patient: Study of One Thousand Consecutive Histories of Sick People. L. J. Palmer, Seattle.—p. 18.
Focal Infection from Dentist's Standpoint. L. F. Shaw, Pocatello, Idaho.—p. 21.
William Harvey and His Discovery. H. Viets, Boston.—p. 23.

**Benzyl Benzoate in Bladder Distention.**—Stater and Vickers have used benzyl benzoate to control the after-pains of labor and in cases of postpartum distention of the bladder—2 c.c. of a 20 per cent. alcoholic solution of benzyl benzoate by mouth being sufficient to incite urination in twenty minutes. The drug was also used with success in cases of carcinoma of the rectum with extensive surgical excision, hysterectomy for fibroids, circumcision and lobar pneumonia.

## Pennsylvania Medical Journal, Harrisburg

January, 1922, **25**, No. 4

Preventive Pediatrics. H. J. Cartin, Johnstown.—p. 227.
Modern Conceptions of Treatment of Syphilis. J. F. Schamberg, Philadelphia.—p. 228.
*Treatment of Visceral Syphilis. T. McCrae, Philadelphia.—p. 234.
*Treatment of Neurosyphilis. H. C. Solomon, Boston.—p. 236.
Transfusion: Methods and Indications. W. E. Lundblad, Sayre.—p. 245.
*Unresolved Pneumonia. G. M. Piersol, Philadelphia.—p. 249.
*Protracted Unilateral Bronchopneumonia of Lobar Distribution. D. Riesman, Philadelphia.—p. 255.
*Diseased Conditions of Bones and Joints as Influenced by Menstruation. J. T. Rugh, Philadelphia.—p. 261.
Message from Homeopathic Medical Society of Pennsylvania. C. Bartlett, Philadelphia.—p. 264.
Medical Legislative Conference. E. A. Krusen, Norristown.—p. 265.
Fallacy and Syphilis. P. S. Pelouze, Philadelphia.—p. 265.
Case of Chronic Jaundice, Cured by Lateral Anastomosis of Common Bile Duct with Stomach. M. Behrend, Philadelphia.—p. 268.
Co-operation Between Physician and Minister. A. O. Caldwell, Waverly, N. Y.—p. 269.

**Treatment of Visceral Syphilis.**—One point emphasized by McCrae as being worthy of note is paying attention to the condition of the blood. This should be watched and proper treatment carried out for anemia. In visceral syphilis arsphenamin and neo-arsphenamin should be given in small dosage, especially with aortic disease and not at all in hepatic syphilis. The use of mercury should be regarded as an important aid in visceral syphilis. Treatment should be given as intensively as possible and repeated, if possible, once a year for five years, better once a year for the duration of the patient's life.

**Treatment of Neurosyphilis.**—Solomon is optimistic about the treatment of neurosyphilis. Not all patients can be helped, but many patient who are considered incurable can be benefited greatly by intensive and prolonged treatment of the

proper sort. Some do well under one form of treatment; some do well under another; some do not do well at all, and some patients develop neurosyphilis despite a type of treatment under which other patients who have neurosyphilis are cured. The best method is the method which produces results in the given case.

**Unresolved Pneumonia.**—An interesting feature of the pneumonias that have been so prevalent of late years, Piersol says, is the predominance of pneumonias of lobular distribution, or bronchopneumonia. Typical croupous, or lobal pneumonia, has been relatively uncommon. Furthermore, in the recent epidemics of pneumonia ,the chief etiologic factor has not been pneumococcus. Indeed, this organism has frequently been entirely absent. The disease has more often been due to mixed infections: notably by streptococci, both hemolytic and nonhemolytic, and by the influenza bacillus, these organisms occurring alone, in combination, or in association with various strains of pneumococci. Consequently, typical pneumococcus lobar pneumonia has been comparatively infrequent. Chronic pulmonary disease of pneumonic origin is more frequently encountered than heretofore, because of the bacteriologic and pathologic findings peculiar to the recently prevalent bronchopneumonias. As the result of the increased incidence of bronchopneumonias of nonpneumococcic origin, unresolved pneumonia has been observed more often. There are two main classes of cases that are diagnosed unresolved pneumonia. The first class embraces the true instances of unresolved pneumonia, but which in reality prove to be some graver complication. Piersol says that the reason delayed resolution frequently goes unrecognized, is because the prevalence of primary bronchopneumonia in adults is not generally appreciated.

**Bronchopneumonia of Lobar Distribution.**—The most striking feature of the disease discussed by Riesman is the presence of a lesion at the base of the lung, in the lower lobe, without concomitant involvement of the apex. The infection is primarily and almost exclusively a basal one and, in the vast majority of cases, involves but a single lower lobe, the left perhaps a little more often than the right. Among all the cases of unilateral bronchopneumonia of lobar distribution that Riesman has seen, there has been only one in which tuberculosis supervened. The clinical history and course of the disease are discussed by Riesman. The cases may be classified into acute, subacute and chronic. The physical signs vary little in these three groups, the separation being based chiefly on the history. The treatment is purely symptomatic. Complete recovery may be promised in virtually all cases in young persons. In older individuals, the condition may drag on for years without much change in either the physical signs or the general health. There is no breaking down and no cavitation as one finds in chronic pulmonary tuberculosis.

**Effect of Menstruation on Disease.**—Whatsoever may be the changes which occur during the process of menstruation, and however they may be produced, Rugh asserts that a diseased area in any portion of the body may be adversely affected by it, and the surgeon must be prepared to deal with whatever complication may arise at that time. It is undoubtedly good surgery to advise against, and refuse to undertake any surgical procedures of any degree of severity, immediately preceding or during the period of menstruation.

## Philippine Journal of Science, Manila

August, 1921, **19**, No. 2

Citrus-Canker Control. H. A. Lee, Manila.—p. 129.
Kalinga Texts from Balbalasang-Ginaang Group. O. Scheerer.—p. 175.
Japanese Lepidoptera and Their Larvae: Part VI. A. E. Wileman.—p. 209.
Ancient Cave Dwellers of Batwaan, Masbate, Philippine Islands. W. D. Smith.—p. 233.
Opisthorchis Wardi, New Species of Liver Fluke from Cat in Philippine Islands. L. D. Wharton.—p. 243.
Philippine Alcyonaria. Part VI: New Philippine Pennatularia (Sea Pens) of Genus Lituaria. S. F. Light.—p. 247.

September, 1921, **19**, No. 3

Filariasis in China. J. P. Maxwell.—p. 257.
Review of New Species of Plants Proposed by N. L. Burman in His Flora Indica. E. D. Merrill.—p. 329.

## Virginia Medical Monthly, Richmond

January, 1922, **48**, No. 9

Pulmonary Tuberculosis and Syphilis. H. G. Carter, Burkeville.—p. 553.
Children's Psychopathic Clinic of Medical College of Virginia. R. F. Gayle, Jr., and H. DeJ. Coghill, Richmond.—p. 558.
Treatment of Syphilis of Central Nervous System. D. C. Smith, Charlottesville.—p. 561.
*Adenoma of Pituitary: Report of Five Cases. J. W. Hunter, Jr., Norfolk.—p. 563.
Prostatectomy Under Local Anesthesia; Report of Sixteen Cases. T. J. Hughes, Roanoke.—p. 570.
Plea for Earlier Reference of Prostatic. J. H. Neff, University.—p. 572.
Tuberculosis of Kidney. A. I. Dodson, Richmond.—p. 574.
Granuloma Inguinale. C. F. Ross, Richmond.—p. 579.
Focal Infection of Urinary Tract. L. T. Price, Richmond.—p. 582.
Urologic Problems of Interest to General Practitioner. A. L. Wolbarst, New York.—p. 586.
Outbreak of Diphtheria at University and Charlottesville, Va., Due to Milk Infection. W. E. Bray, University.—p. 592.
Nitroglycerin and Veratrum in Early Pneumonia. A. B. Grubb, Cripple Creek.—p. 593.
Primary Laryngeal Diphtheria. E. T. Gatewood, Richmond.—p. 594.
*Globus Diospyri Virginianae Seminum; Report of Case. W. L. Peple, Richmond.—p. 596.
Treatment of Blepharitis Ulcerosa with Mercurochrome. W. Patterson, Danville.—p. 599.

**Adenoma of Pituitary.**—All of the five patients reported on by Hunter primarily complained of failing vision. In two cases there was a complete bitemporal hemianopsia for all of the colors; in one there was a greatly contracted field of vision for either eye with a bitemporal hemianopsia for the blue and red; in one there has been a gradual loss of sight, that of the left eye being entirely gone when seen and a temporal hemianopsia in the right, the blindness becoming total in time; and in one a complete blindness existed when seen. This emphasizes the need of mapping out the fields of vision in all doubtful cases. It is furthermore noted that in one case there was a distinct notch in the outer and upper quadrant of the fields of vision.

**Persimmon Seeds Tumor of Stomach.**—Peple reports the case of a man who ate freely of persimmon, seeds and all, and soon after began to have gastric distress and nausea. He also had a readily palpated and movable lump in his stomach. The mass was removed through a gastrostomy opening. It was 3½ inches long and about 3 inches wide, very irregular in outline and compact in structure, containing the persimmon seeds.

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## FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

## British Medical Journal, London

Jan. 7, 1922, **1**, No. 3184

Certain Aspects of Pain. H. Head.—p. 1.
*Problems Involved in Congress of Sexes in Man. A. Thomson.—p. 5.
*Secretion into Stomach and Duodenum; with Special Reference to Diabetes Mellitus. T. I. Bennett and E. C. Dodds.—p. 9.
Hemiplegia in Young Child, Followed Later by Locomotor Ataxia. W. Calwell.—p. 11.
*Asthma and Radium Menopause. J. N. M. Ross.—p. 12.
Treatment of Squint. H. Smith.—p. 13.
*Pulsatilla in Dysmenorrhea. F. C. Coley.—p. 13.
Obstruction of Pelvic Colon by Pedicle of Ovarian Cyst. G. S. Woodman.—p. 14.
Eruption Resembling Varicella in Lobar Pneumonia. W. S. Sharpe.—p. 14.
Operation of Cholecystgastrostomy. G. Ralphs.—p. 14.

**Endocrine in Male Ejaculate.**—Thomson suggests that the male ejaculate contains other ingredients than those alone concerned with fertilization, perhaps some hormone or endocrine secretion, which, by rapid absorption through the tissues of the female, may set agoing, through the agency of the thyroid, the complex mechanism involved in the elaborate preparations of the sexual system to meet its reproductive obligations. Thomson says that he has been told that among musicians it is recognized that the female voice never attains to its full pitch of excellence until marital relations have been established.

**Secretion into Stomach and Duodenum.**—Bennett and Dodds assert that the variations in alveolar carbon dioxid tension after a meal depend, in a subject at rest, on the secretions of acid and alkali into the stomach and duodenum.

Confirmation of this is given by the curves of alveolar carbon dioxid pressure from subjects with varying degrees of gastric secretion, or with pancreatic insufficiency. Further confirmation is supplied by the results of experimental introduction of food direct into the duodenum. The application of atropin to the mucosa of the stomach or duodenum appears to arrest the secretion of acid or alkali into the organ to which the drug is applied. The authors believe that, like salivary and gastric secretion, pancreatic secretion must be a slow, continuous process interrupted by a more vigorous flow whenever food traverses the pylorus. The fasting level of alveolar carbon dioxid tension in any subject represents a balance between the continuous loss from the blood stream of acid via the stomach, and alkali via the pancreas and duodenum. Cases of severe diabetes frequently show a low fasting level of alveolar carbon dioxid tension even when no ketosis is present. Cases of severe diabetes investigated by the authors have, after a test meal, shown a fall of alveolar carbon dioxid tension greater than that seen in any other condition so far examined. It is suggested that this is due to a condition of hypersecretion of the pancreas analogous to the gastric hypersecretion seen in cases of Reichmann's disease (gastrosuccorea).

**Asthma Caused by Radium Menopause.**—Ross relates the case of a woman who developed a peculiar mental condition, which was diagnosed as being due to cerebral anemia caused by excessive monthly loss of blood. The menopause was artificially induced by the introduction of radium into the uterine cavity. In ten days she was mentally quite normal and menstruation has permanently ceased. As soon as she commenced to resume partially her ordinary life a purulent secretion appeared from both antra, accompanied by exceedingly troublesome asthmatic attacks. The sputum contained large numbers of pus cells and long chain streptococci, while both nasal and antral swabs showed large numbers of streptococci and also gram-negative bacilli (probably Friedländer's). An autogenous vaccine was made, and she was given twelve progressively increasing doses. No improvement was noticed. Asthma was practically continuous; bronchitis was marked at both bases; the patient was losing weight, could get no rest by day or night, and was rapidly going downhill. Ross made exhaustive trials of practically every known medicine which had any reputation whatsoever in controlling asthmatic attacks, but none had the slightest beneficial effect. Finally, thinking that the menopause might be responsible for the patient's conditition, ovarian and mammary gland extracts were administered. Immediate improvement in the patient's condition set in and under continued treatment the patient made a complete recovery.

**Pulsatilla in Dysmenorrhea.**—In cases of premenstrual pain with small loss of blood Coley has had good results from the use of tincture of pulsatilla, 10 minims, and spirits of chloroform, 5 minims, every three hours.

## China Medical Journal, Shanghai

November, 1921, **35**, No. 6

*Case of Glioma Retinae. H. T. Pi.—p. 499.
Collection of Chinese Embryos. P. H. Stevenson.—p. 503.
Mastoiditis in Peking. A. M. Dunlap.—p. 521.
*Serum Globulin in Kala-Azar. R. H. P. Sia and Hsien Wu.—p. 527.
Intestinal Parasites of Man in Central Yangtze Valley. E. C. Faust and C. McA. Wassell.—p. 532.
Incidence of Vaccination and Smallpox in North China. J. M. Korns.—p. 561.
Toxicity of Antimony in Rabbits. J. H. Korns.—p. 564.
New Viewpoint of Pharmacology. B. E. Read.—p. 567.

**Bilateral Glioma of Retina in Child.**—Pi's patient was only 3 years of age and both eyes were affected by the disease. The child died four months after Pi first saw her.

**Serum Globulin Content of Kala-Azar Blood.**—A study was made by Sia and Hsien of Ray's so-called "hemolytic" test for kala-azar with the purpose of determining the nature of the turbidity and precipitate which forms when blood from kala-azar patient is added to distilled water. Ray's assumption that the turbidity is due to incomplete hemolysis of the red blood corpuscles resulting from some change in the kala-azar blood plasma was found to be incorrect. There was no difference observed between kala-azar serum and normal serum in the power to protect red blood cells against hemolysis. It was found, however, that when kala-azar serum alone is mixed with distilled water a precipitate occurs. Quantitative studies of the globulin content of kala-azar blood revealed the fact that in this disease the serum globulin is not only much increased over normal but the concentration is higher than has been found in any other diseased condition. This result is in keeping with the previous finding that the test was positive only in kala-azar. It is proposed that this test be called the globulin precipitation test for kala-azar.

## Indian Journal of Medicine, Calcutta

December, 1921, **2**, No. 4

*Fixing of Standards of Purity of Milk and Its Products. S. B. Ghose and C. L. Bose.—p. 485.
Enlargement of Prostate. N. P. Srivastav.—p. 493.
Modified Smith's Cataract Operation in Capsule. S. N. Mixra.—p. 502.
Snakebite or Anaphylaxis. B. Das.—p. 505.
Treatment of Cholera. P. Ganguly.—p. 507.
*Epidemic Dropsy Among Officers and Prisoners of Malda Jail. B. K. Bhowmic and S. L. Sarkar.—p. 510.
*Digital Dilatation of Os in Labor. R. P. Banerji.—p. 517.
Ratbite Fever. S. K. Mukherjee.—p. 522.

**Standards for Milk Purity.**—Taking the average of the mean percentages of fat and nonfatty solids of cow's milk examined and Ghose and Bose in various parts of India, they obtain 4.67 as the figure for fat and 8.82 as that for nonfatty solids. If, therefore, 4 per cent. of fat and 8.5 per cent. of solids-not-fat are fixed as minimum standards of purity of cow's milk, it will, in their opinion, be a fair and reasonable standard. Any sample of cow's milk giving figures lower than these should be presumed to be adulterated unless the contrary is proved by the vendor.

**Epidemic Dropsy.**—The predominating symptoms in the cases of epidemic dropsy cited by Bhowmic and Sarkar were: petechial rash on the lower extremities; diarrhea; galloping rhythm; dyspnea at nights; high temperature—up to 104 F. There is strong ground for the belief that the disease spreads by intimate contact. The period of infectivity is short. The disease appears to have an incubation period of five or six days. The fact that two babies escaped sugests that those who live on milk are not liable to get this diseases though they were nursed now and then by their mothers who got the disease very badly. Possibly the seat of mischief is in the intestines. The constant formation of gas in the intestines as wall as the pronounced loss of appetite and other gastro-intestinal symptoms, point toward a fermentative process.

**Digital Dilatation of Os.**—Banerji uses both hands—back to back—first introducing the right index finger then the left. By slight separation of the terminal phalanges one can dilate the os at pleasure. The dilating pressure thus made is not a direct outward one against the edge of the os, which would rush and injure it, but it is downward and outward, for the finger tips are hooked within the os, and the dilation thus very closely resembles the natural one. By a slight change in the position of the fingers, to vary the direction of the pressure, the whole circumsference of the part to be dilated is more or less acted on.

## Lancet, London

Jan. 7, 1922, **1**, No. 5132

Body and Mind: Origin of Dualism. F. Mott.—p. 1.
Serum Treatment of Tuberculosis. H. Spahlinger.—p. 5.
*Chorionepithelioma. J. M. M. Kerr.—p. 9.
*Case of Venous Angioma of Cerebral Cortex. H. Campbell and C. Ballance.—p. 10.
Case of Bilateral Interstitial Ruptured Ectopic Gestation Sacs. A. E. M. Woolf.—p. 11.
Fixation Abscess. A. T. Todd.—p. 12.
Significance of Digestion Leukocytosis. D. N. Paton.—p. 15.
Obstruction of Pelvic Colon by Pedicle of an Ovarian Cyst. G. S. Woodman.—p. 16.
Case of Anastomotic Ulcer. Following Gastro-Enterostomy Four Years Previously: Transgastric Excision and Recovery. J. W. Adams.—p. 16.
Colloidal Manganese in Hodgkin's Disease. R. Samut.—p. 17.
Case of Congenital Multilocular Cyst of Axilla in Baby. R. Handfield-Jones.—p. 17.

**Chorionepithelioma.**—Kerr has had eight cases of this type. Two patients died as a result of the operation; two died of metastases; two are still alive who were operated on many years ago; one who was operated on a year ago is still well;

and one is lost from sight. A permanent cure, taking early and late cases, may be expected in about 30 per cent. of cases, showing a result a little worse than in carcinoma of the uterine body. Kerr had thrice performed vaginal hysterectomy and five times the abdominal operation. It is unnecessary to do a Wertheim operation in this condition as the glands are rarely, if ever, affected. Besides, it takes a much longer time, and in all cases the shorter the duration of the operation and the less blood lost the better the chances of success.

**Venous Angioma of Cerebral Cortex.**—The first symptom noticed by the man whose case is cited by Campbell and Ballance was weakness in the left arm and leg which progressively increased. Since the beginning of the weakness he suffered from fits involving the same side, generally beginning with numbness in the left toes; the numbness spread upward; when it reached the left hand the latter closed; when it reached the left temple the head turned to the left and the mouth opened. After a fit severe headache was felt. The diagnosis was a progressive lesion—neoplasm—involving the postcentral and precentral gyri. At operation a venous angioma beneath the arachnoid membrane was exposed. The most prominent part of the angioma was within the concavity formed by a bend of a large vein near the middle line and was whitish in color due to some change in the arachnoid. This corresponded to the upper part of the ascending parietal convolution.

## Medical Journal of Australia, Sydney

Dec. 17, 1921, **2**, No. 25

Treatment of Hydatid Disease. B. Kilvington.—p. 555.
Medical Organization. A. G. Butler.—p. 558.

## Sei-I-Kwai Medical Journal, Tokyo

December, 1921, **40**, No. 5

Active Principles of Pituitary Body. Y. Saito.—p. 1.
Suprarenal Tumors of Horses and Cattle. T. Kimura.—p. 3.

## South African Medical Record, Cape Town

Dec. 10, 1921, **19**, No. 23

Toxic Idiopathies or Idiopathic Toxemias. E. G. Dru-Drury.—p. 451.

## Tubercle, London

January, 1922, **3**, No. 4

*Epidemiologic Studies in Human Tuberculosis. A. Distaso and A. C. Johnson.—p. 145.
Organization Against Tuberculosis in France. L. Bernard and G. Poix.—p. 159.
Extrapleural Pneumolysis. H. Ulrici.—p. 162.

**Epidemiology of Tuberculosis.**—An inquiry made by Distaso and Johnson in an agricultural village shows that tuberculosis has spread from two main foci of infection. From these two foci, the actual cases existing in the village and also the "contact" have arisen, with one exception which is an independent focus and is subsiding. Infection takes two lines. It spreads in the family, producing active disease; it infects also strangers or near relatives who come in less intimate contact with the infecting persons, but does not in them produce open tuberculosis. These people are relatively immune, because they are healthy adults and they do not show, up to now, the least clinical sign or symptom of active disease. The fact that offspring of these families present a negative reaction, whereas the parents present a positive reaction, has led the authors to conclude that the parents have gone through an infection but that the infection has merely led to an immunization of the individual. From this observation they have concluded that the Pirquet reaction is a reaction of immunity. Should the parents have been infectious they would have infected their children. The condition sine qua non for infectivity in tuberculosis is the existence of open foci in the lungs. The expired air is the chief vehicle of infection. Of all accessory factors for the spread of tuberculosis, overcrowding seems to be the most important. In order that immunity shall arise the contact must take place at intervals, only small quantities of virus being absorbed. Under these circumstances the human organism mobilizes its defense and can cope with the infection. Practically speaking, people in intermittent contact with open cases get only a Pirquet "positive" but not the active disease, deriving benefit, not harm, from the small doses of bacilli to which they are exposed. On the other hand, the facts brought out through this inquiry show that when the virus is absorbed continually, as in the intimate contact of mother and child, then active tuberculosis arises.

## Bulletin de l'Académie de Médecine, Paris

Dec. 6, 1921, **86**, No. 40

Systematic Reexamination in Preventive Medicine. L. Rénon.—p. 316.
Anthropology and the Medical Sciences. R. Verneau.—p. 319.
Epidemic of Dysentery in Seine Region. H. Violle.—p. 321.
Three Electrode Lamp as Gage for Roentgen Rays. Guilbert.—p. 323.
*Plague on French War Ship. P. Barthélemy.—p. 326.

Dec. 13, 1921, **86**, No. 41

Report on Prizes.—p. 329. See News Item, THE JOURNAL, p. 360.
A Century of Annual Reviews at the Académie. C. Achard.—p. 358.
Conditions for Prize Competition.—p. 376.

**Plague on War Vessel.**—Barthélemy traces the epidemic of plague on the Cronstadt last year to the rat cadavers left after deratization. The plague bacilli survive the fumes that kill the animals infested by them, and other rats coming on board may become infected. This warns that the rat cadavers should be burnt after deratization. In one case of plague the only symptom was fever, but plague bacilli were cultivated from the blood. The man recovered.

## Bulletin Médical, Paris

Dec. 17, 1921, **35**, No. 51

*Visual Disturbances After Loss of Blood. A. Terson.—p. 1005.
Ultraviolet Rays in Therapeutics. L. Oppenheim.—p. 1006.

**Visual Disturbances After Loss of Blood.**—Terson has been collecting data for some time on this subject, and has found records of only 250 cases. The disturbances did not develop until from three to eight days after the loss of blood; no instance is known of an interval of over three weeks. The disturbances are of three types: a rapidly curable night blindness; hemianopia of cortical origin, the fundus of the eye normal but the gap in the field of vision permanent; weakening of vision in one or both eyes. It may progress to partial or total blindness which usually is incurable. These visual disturbances can occur at any age but are most common in women after childbirth and after repeated venesection. Sometimes the lesion is accompanied by deafness, coma, polyneuritis, oculomotor paralysis or headache, showing that other centers and nerves are suffering likewise. To ward off or relieve such accidents, the head should be kept low, the legs raised, and the blood pressure and heart action stimulated by transfusion of citrated blood or saline in emergencies. The patient should not be allowed to sit up, for any reason, and very hot compresses should be applied to the eyes. Autohemotherapy, turpentine fixation abscess and lumbar puncture should be studied in this connection. In tardy treatment of the atrophy of the optic nerve, he suggests subconjunctival and periocular injections for revulsion, plus phosphorus, strychnin and fibrolysin.

Dec. 31, 1921, **35**, No. 53

*Obesity in Children. G. Mouriquand.—p. 1037.
Organotherapy in Obesity. F. Rathery.—p. 1045.
Regulation of Lipoid Content of Blood. Schaeffer.—p. 1050.
*Physical Measures in Treatment of Obesity. P. Mathieu.—p. 1051.

**Obesity in Children.**—Mouriquand remarks that treatment of obesity in children should begin before they are born, before conception, the parents taking a course of physical treatment to combat their obesity, as well as dieting. The pregnant woman should refrain from fattening foods, but should not starve herself. Weill has reported the case of an obese woman who fairly starved herself during her second pregnancy, but this second child was even larger than her very large first child. Overfeeding of the infant must be guarded against with special care in families predisposed to obesity, and at weaning and later the more fattening elements must not be allowed in excess. It is sometimes advisable to get the child out of an environment with sedentary and overeating habits. Some children eat an enormous amount of bread; by reducing this, the tendency to obesity may be averted. Respiratory exercises increase the chest measure and oxidations, and training the muscles improves the "draft."

With any tendency to myxedema, thyroid treatment may be effectual, but under other conditions it should be given very cautiously. It may increase the appetite, and thus do harm. When an endocrine origin is suspected, a combined organotherapy might be tried, alternating thyroid and ovarian treatment for a girl at puberty, or a combination of pituitary, ovary, and suprarenal extract with a minute amount of thyroid. This associated organotherapy has to be kept up for a long time, with intervals of from two to four weeks.

**Treatment of Obesity by Physical Measures.**—Mathieu insists that muscular exercise aids in combating obesity only when the exercise is rapid and prolonged enough to use up the circulating and reserve glycogen; the liver functioning enough to transform the fat into glucose; and the food poor in carbohydrates and fats that generate glycogen anew to replace what is used up by the muscles. Recent research has shown that the lungs oxidate and consume, locally, a considerable amount of the fat reserves. A further essential is endocrine organotherapy or a course of mineral waters, acording to the case. The pulse and blood pressure should be recorded before and after test exercises to learn how much the cardiovascular system can stand. Kidney functioning must also be supervised to insure that the waste products, increased by the exercise, are being duly flushed out.

## Bulletins de la Société Médicale des Hôpitaux, Paris

Nov. 25, 1921, **45**, No. 34

Case of Gangrene of Lung. Denéchau, Estève and Quartier.—p. 1534.
Erythema Nodosum in Pneumococcus Septicemia. E. Sacquépée.—p. 1539.
"Aplastic Leukemia with Undifferentiated Cells." A. Clerc.—p. 1542.
*Rupture of Heart. L. Ramond, E. Baudouin and Fouché.—p. 1545.
*Tabetic Hip Joint Disease. A. Léri and Lerond.—p. 1551.
Typhoid Perforation of Meckel's Diverticulum. Léri and Deschamps.—p. 1554.
*Autoserotherapy of Arthritis. Dufour, Thiers and Alexewsky.—p. 1558.
*Diuretic Action of Calcium. L. Blum, E. Aubel and R. Hausknecht.—p. 1561. Idem. L. Blum and O. Bang.—p. 1569.

**Spontaneous Rupture of the Heart.**—The rupture in the man of 67 was one of the largest of the twenty-seven cases compiled; only two others were larger, the split measuring 5 and 6 cm. The symptoms were those of traumatic slow accumulation of blood in the pericardium, but, at the time, the diagnosis had been liver colic. This was disproved by the sudden death. The first symptoms had been intense pain in the epigastrium, with vomiting and colics. The pallor, lipothymia, distress and dyspnea, the spreading of the pain to the left shoulder and arm, and signs of arteriosclerosis might have suggested the diagnosis. In another case, the colic pains had been ascribed to the digestive tract, and there was suspicion of poisoning until necropsy revealed the rupture of the heart.

**Tabetic Pseudoparaplegia.**—The woman, now 60, has been classed for twenty years as a case of paraplegia, but there is no paralysis. The impotence of the legs is the result of tabetic injury of both hip joints, with luxation of the femurs, the head and neck entirely destroyed. The whole process was painless.

**Treatment of Gonorrheal Arthritis.**—Three new cases are added to the three previously published by these writers, all testifying to the curative action of subcutaneous injection of the fluid obtained by puncture from the diseased joint. They comment on the efficacy, prompt action and harmlessness of this form of autoserotherapy. It seems to make no difference whether the fluid contains pus or gonococci. They inject from 10 to 20 c.c. and repeat this as often as puncture is required. In the total six cases, the cure was realized in from four to thirty days. Seven similar cases have been published by others, all reporting prompt success.

**Diuretic Action of Calcium Salts.**—Blum, Aubel and Hausknecht have previously explained the diuretic action of potassium salts as owing to the potassium displacing the sodium in the tissues. The sodium is then cast off, and with it the water that had been retained to balance the sodium. They here report research on calcium salts which shows they are equally effectual in inducing diuresis, and by the same mechanism. The antagonism between calcium and sodium is even more pronounced than with potassium. In one case reported, the diffuse edema had persisted unmodified by the usual diuretics, but the weight dropped rapidly by 11 kg. when calcium salts—especially the chlorid—were administered. As soon as the calcium was suspended, the decline in weight stopped. When the woman of 58 was given a mixture of sodium chlorid and calcium chlorid, she increased in weight, and there was no diuretic action, merely three diarrheic stools. The ascites with cirrhosis of the liver subsided likewise under calcium chlorid in three cases described. The effect is at least as pronounced as with potassium salts. The intake of salt has to be restricted, and the dose of the calcium chlorid has to be adequate. Their usual dose was 11.1 gm. of the calcium chlorid by the mouth, but they gave up to 22 gm. in some cases. They suspend the drug after five or six days, and wait for eight or ten before resuming it. They explain that the calcium seems to be eliminated by way of the bowel; the chlorin by way of the kidneys. As the chlorin is freed from the calcium, it is forced to combine with sodium, and the sodium is cast off, and with it the surplus of water.

Dec. 2, 1921, **45**, No. 35

*Rupture of Heart. A. Lemierre and R. Piédelièvre.—p. 1577.
*Paget's Disease of Bones. Babonneix, Denoyelle and Périsson.—p. 1579. Idem. Galliard.—p. 1583.
*Shape of Interlobar Fissure. E. Rist and P. Ameuille.—p. 1583.
*Plexiform Neuroma. Crouzon, H. Bouttier and R. Mathieu.—p. 1591.
Case of Facial Trophoneurosis. A. Léri.—p. 1594.
*Diphtheric Paralysis in Adults. P. Marie and R. Mathieu.—p. 1600. Idem. V. de Lavergne and Zoeller.—p. 1610.

**Spontaneous Rupture of the Heart.**—The laboring man of 52 had complained of pain in the epigastrium for five days, and there had been a little fever and chills, with sweats, but he had kept at work for the first day. He seemed to be improving, when death suddenly ensued. Necropsy showed a rupture of the left ventricle but no signs of hypertrophy of the heart or sclerosis of the kidneys, and the blood pressure was not high.

**Paget's Disease of the Bones.**—In a case described in an aged woman the incomplete picture of Paget's disease of the bones was of syphilitic origin, "as always." Galliard and also de Massary ascribe to Paget's disease a few other cases in which the disease was restricted to one femur or to one tibia, or the tibia and fibula in one leg.

**Change in Shape of Interlobar Fissure in Pulmonary Tuberculosis.**—Rist and Ameuille present evidence that the interlobar fissure is drawn out of shape sometimes by a tuberculous process in the lung. This tendency seems to be most pronounced when the tuberculous lesion is more of the sclerosis type. Their roentgenograms show the displacement, and they explain how to interpret it. Roentgenoscopy from the side is most instructive. A tuberculous focus at first is generally restricted to a single lobe of the lung, while a pneumococcus lesion frequently straddles the interlobar fissure. A tuberculous focus restricted to a small area often runs an abortive or attenuated course. When clinical symptoms are pronounced, the whole lobe will generally be found involved. They argue further that the initial tuberculous lesion in an adult is primarily of a pneumonia type.

**Plexiform Neuroma.**—The illustration shows the lumbar, buttocks and thigh regions the site of huge confluent tumors in the young woman. Besides these plexiform neuromas, there are neurofibromas and pigmented nevi completing the picture of Recklinghausen's disease.

**Paralysis of Diphtheric Origin in Adults.**—In the two men, 18 and 34, the paralysis seemed to be of a spinal type, and there was disturbance in speech, swallowing and accommodation, in addition to the partial impotence of arms and legs. Diphtheric paralysis in adults is rare. There have never been more than two or three cases a year in Marie's service at the Salpêtrière, but he had four cases in a recent fortnight. In the discussion that followed, Ramond stated that paralysis developed in 18 per cent. of the soldiers affected during an epidemic of diphtheria in one regiment until the practice was adopted of injecting 5 or 10 c.c. of the antitoxin intraspinally, as a supplementary measure. Marie and Mathieu are inclined to believe that the diphtheria toxin may induce merely peripheral neuritis but, when very virulent, its action is felt by the spinal cord also.

**Diphtheric Paralysis in Adults.**—The cerebrospinal fluid of 6 out of 11 men with diphtheric paralysis contained no toxin or antitoxin although antitoxin was present in the blood. In the one case of grave and persisting paralysis, no antitoxin could be found in the blood the third month. The Schick test was negative in 8 of the 11 cases.

Dec. 9, 1921, **45**, No. 36

Cartilaginous Nodule in Sixth Cervical Vertebra. A. Léri and M. Laurent.—p. 1617.
Atypical Adipose-Genital Syndrome. Babonneix and Denoyelle.—p. 1619.
*Significance of Gallop Sounds. C. Laubry and A. Mougeot.—p. 1623.
*Case of Splenopneumonia. G. Caussade and P. Deberdt.—p. 1635.
*Diagnostic Significance of Parkinsonism. J. A. Sicard.—p. 1647.
*Plague at Paris. E. Joltrain and L. de Gennes.—p. 1653.

**The Gallop Sound.**—The data analyzed by Laubry and Mougeot apparently demonstrate that the mesodiastolic and protodiastolic gallop sounds are the result of atony of the ventricle. There is always some loss of conductibility and shortening of the diastole. When this is due to grave intoxication, as in uremia and asphyxia, the prognosis is grave, but with transient toxic action, heart tonics may tide the patient past the danger point. They advocate strophanthus in particular for this. Digitalis is indicated with the diastolic gallop and irregular rhythm. Under other conditions, ouabain is their main reliance; its beneficial action, the possible disappearance or transformation of the diastolic gallop under its influence, suggest new and more favorable elements for the prognosis.

**Encysted Pleurisy.**—Caussade and Deberdt explain retrospectively the case illustrated as splenopneumonia masking completely an encysted pleurisy in the middle of the horizontal fissure of the right lung of the young man. The tuberculous nature of the case is dubious.

**Parkinsonism in Retrospective Diagnosis.**—Sicard regards the development of parkinsonian symptoms as the Ariadne's thread which can guide us through the maze of symptoms for which abortive or abnormal forms of epidemic encephalitis may be responsible. He calls the latter *névraxite épidémique*, and states that parkinsonism was pronounced in twenty-two of his sixty cases, although it developed late; in one case not until fifteen months after apparent recovery from the epidemic encephalitis.

**Plague at Paris.**—Joltrain and de Gennes relate that the recent discovery of plague infected rats at Paris, and a few isolated clinical cases of plague during the summer testify that the infection is not extinct. In the first of the three cases described, a man had been sent to the hospital with the diagnosis of strangulated inguinal hernia; in the other cases the acute symptoms first suggested typhoid or pneumonia until the discovery of buboes in groin or axilla cleared up the diagnosis in the case. In all, plague bacilli were found in the blood, and the septicemia proved fatal in from two to seven days after the first symptoms, notwithstanding early and intensive antiserum treatment. A total of ten cases were reported in Paris this summer, with five deaths, and there were a few cases at Marseilles. In conclusion they quote some city ordinances at Paris regarding the plague. One, dated 1510, ordered that a bundle of straw should be hung out of a window of a house where there had been a case of plague, and the straw kept there for two months afterward. In 1544, public gatherings were forbidden on account of danger of plague, and in 1563 closed carts to collect household refuse were sent through the streets twice a day.

Dec. 16, 1921, **45**, No. 37

*Therapeutic Pneumoserosa. P. E. Weil and Loiseleur.—p. 1661.
Appendicular Vagotonia. E. Enriquez et al.—p. 1669.
Epidemic Encephalitis. A. Gosset and R. A. Gutmann.—p. 1674.
A New Calcium Salt. L. Gaucher.—p. 1677.

**Injection of Air in Treatment of Tuberculous Peritonitis.**—Weil and Loiseleur report 3 failures and 3 apparently complete cures in 6 cases of tuberculous peritonitis treated by injection of air. They call the procedure pneumoserosa, to distinguish it from pneumothorax; the technic of the two are practically the same. The tendency to ascites was cured in all but one of the 6 cases. The failures were explained by tuberculous lesions elsewhere. The 3 successful cases have been followed for years and the cure was so complete that there were no adhesions left. This is a special advantage of this pneumoserosa technic applied to either pleura or peritoneum. As soon as the fever has subsided and there is no further ascites, heliotherapy should be applied to supplement the pneumoserosa. They advise not to inject air to more than half the amount of the fluid withdrawn. In their cases they repeated the injection of air three or five times. After the ascites has disappeared, the injection of air causes discomfort, and the ultimate outcome was equally good in the case in which only one injection had been made. The dread of the operation and the slight pain from it seem to contraindicate the pneumoserosa for children. They had to abandon this treatment in the few cases in children in which they had attempted it.

Dec. 23, 1921, **45**, No. 38

*Bronzed Diabetes. P. Lereboullet and J. Mouzon.—p. 1681.
*Bronzed Cirrhosis. C. Achard and A. Leblanc.—p. 1689.
*Deviation of Trachea and Esophagus in Pulmonary Tuberculosis. P. Armand-Delille et al.—p. 1695; p. 1705, and 1707.
Corneal Arc in Syphilis. M. Pinard and Deglaire.—p. 1710.
*Influence of Movements on Tremor. G. Guillain and G. Laroche.—p. 1712.
Hypertrophic Osteo-Arthropathy. Apert and Bigot.—p. 1715.
Hereditary Craniofacial Dysostosis. Idem.—p. 1717.

**Bronzed Diabetes.**—In a case of pigmented cirrhosis of the liver, diabetes developed and proved fatal in three and a half months. The bronzing and enlargement of the liver had preceded the diabetes by four years.

**Bronzed Cirrhosis of the Liver.**—Achard and Leblanc report a similar case, in a baker, 55 years old, with the exception that diabetes did not develop and that the liver showed further an adenocarcinoma. The constant element in such cases is the lesion of the liver. The bronzing and glycosuria are occasional elements.

**Displacement of the Trachea with Pulmonary Tuberculosis.**—In ten of 300 patients with chronic tuberculous processes in the lungs, the shriveling of tissue and other causes had pulled or pushed the trachea so far to one side that it was liable to be mistaken for a cavity. The esophagus and heart are generally misplaced likewise. Palpation shows the displacement of the trachea; in extreme cases the tip of the finger can be worked down to the spine. Induced pneumothorax was responsible for the displacement of the trachea in one of the cases. Laubry and Bloch report a case in which the displaced trachea was mistaken for a large cavity, and the return of conditions to normal under treatment for syphilis confirmed the syphilitic nature of the process. In another case, the shriveling of the lung had drawn the trachea out of place, and it had been mistaken for a cavity, and an artificial pneumothorax had been induced when, in reality, any further treatment of the cured lesion was unnecessary.

**Influence of Movements on Parkinsonism Tremor.**—Guillain and Laroche report a case of unilateral tremor in a woman of 56 who has never shown any signs of epidemic encephalitis. In repose the tremor is so intense that any use of the hand seems out of the question, but during voluntary movements the tremor is suspended. She can play the piano, render a Brahms rhapsody, crochet, and thread a needle without interference from the tremor. There are occasional pains in the arm, and they remark that pain as an element in the clinical picture of Parkinson's disease is more common than generally recognized.

## Médecine, Paris

December, 1921, **3**, No. 3

*Hygiene and Infectious Diseases in 1921. L. Tanon.—p. 165.
*Vaccination Against Cholera. A. Besredka.—p. 180.
Prophylaxis and Disinfection. F. Bordas.—p. 186.
*Anaphylactic Shock in Infections. F. Arloing and A. Dufourt.—p. 190.
Myorhythmic Form of Epidemic Encephalitis. R. Cruchet.—p. 197.
Occupational Dermatoses from Petroleum. E. Gaujoux.—p. 200.
Intermediate Hosts of Parasites of Man. Neveu-Lemaire.—p. 204.
Experimental Dysentery. H. Violle.—p. 209.
*Prandial Defecation. H. Cambessédès.—p. 212.
Importance of Expression of Face in Diagnosis. A. Pouget.—p. 216.
Present Status of Treatment of Acute Poliomyelitis. J. Pignot.—p. 221.
*Prophylactic Treatment of Pre-Chancre Syphilis. A. Tzank and H. Cambessédès.—p. 227.
Diagnosis of Plague from the Blood. Ricquebourg.—p. 229.
Technic for Examination of Sputum. P. Piéchaud.—p. 230.
Albumin Reaction in Sputum. P. Aris.—p. 233.

**Hygiene and Infectious Diseases in 1921.**—Tanon mentions among the various publications of the year, Trillat's statement that conditions are more favorable for the vitality of bacteria on droplets in the air than in the best culture mediums. The surface which they cover is extensive, and this spraying of the suspension of bacteria is what occurs in speaking and coughing. Wollmann has announced that flies bred in an aseptic environment do not pass pathogenic germs on from the larva to the adult fly. The treatment of diphtheria bacilli carriers with a jet of superheated air banished the diphtheria bacilli from fifty carriers in one group last year. The course took from three to five weeks. He mentions that at every one of the weekly meetings of the Société des Hôpitaux de Paris through the year, some communications on epidemic encephalitis or its sequelae were presented. Not much progress has been realized in treatment; some extol the value of atropin, others of cicutin. A few cases of plague were encountered at Paris during the year, including one of plague endocarditis.

**Vaccination Against Cholera.**—Besredka credits Ferrán with the first attempts to vaccinate against cholera. The use of sensitized living cholera vibriones for the vaccine represents great progress, he thinks. Researches in his own laboratory have confirmed the harmlessness of the vibriones after sensitization; and the experiences with it in the Tokyo epidemic, as published in 1920, were conclusive. Besredka argues that anticholera immunity, like that of typhoid, is essentially local, that is, in the intestinal wall. He says that if this proves to be the case, as he surmises, it would be more rational to give the vaccine by the mouth.

**Shock Treatment of Infections.**—Arloing and Dufour reiterate that a sound heart is absolutely indispensable for protein or other shock treatment. Young children, the aged, insufficiency of the liver, unstable and exaggerated reactions as in asthma and tuberculosis, and extreme emotional instability—these all contraindicate or call for extra caution in the colloidoclasis or shock treatment. Péhu has reported the death under it of a child with infectious purpura. In experimental pyocyaneus infection, 80 to 88 per cent. of the guinea-pigs recovered under the protein therapy, while from 76 to 100 per cent. of the controls died. There is no regularity about the effect of shock treatment but, as a rule, the smaller the first injection, the more rapid the sensitization, and the longer the interval before the shock injection is made, the severer the shock.

**Warning Sign of Diarrhea in Infants.**—Cambessédès has often noted in both infants and adults that a stool following at once after feeding testified to some irritation in the bowel, and symptoms of enteritis often followed. Postprandial defecation therefore calls for consideration.

**Abortive Treatment of Syphilis.**—This communication states that fifteen patients were given treatment at once or within two weeks after intercourse with a person known to have syphilis. Four injections of neo-arsphenamin were given, increasing from 0.15 to 0.6, with intervals of three, four and five days. Not one has developed any symptoms during the year since, reexamined every three months.

## Paris Médical

Dec. 3, 1921, **11**, No. 49

*"Therapeutics" in 1921. F. Rathery.—p. 425.
*Quinidin in Auricular Fibrillation. A. Clerc and Pezzi.—p. 440.
The Colloidal Shock. A. Lumière.—p. 445.
*Diathermy in Treatment of the Stomach. H. Bordier.—p. 450.
*Eserin in Internal Therapeutics. F. Moutier.—p. 453.

**Therapeutics in 1921.**—The majority of the publications to which Rathery refers have been summarized in these columns as they appeared, or they appeared originally in THE JOURNAL. Methods for antianaphylaxis and desensitization, vaccines and quinidin have been the leading topics of the year, along with measures to reduce the toxic action of the arsenicals.

**Quinidin in Auricular Fibrillation.**—Clerc and Pezzi give quinidin sulphate in the dose of 0.2 gm. by the mouth the first day; then 0.4 gm. twice the second day. If this is borne well, they increase to 0.8 or even 1.2 gm. during the day, fractioned in 0.2 to 0.3 doses. This can be kept up for five or eight days. This medication is not effectual in about half the cases; the recent cases and those with slight valvular lesions seem to respond to it best. As the drug has a paralyzing influence on the myocardium, in case of asystolia it is wise to precede it with a preparatory course of digitalis. They warn that dissociation between the auricle and ventricle contraindicates quinidin. The urine may grow scantier, and edema and dyspnea reappear during the quinidin treatment, which is not surprising as we know that the effect of quinidin is along the paralyzing line. Frey and Haas have reported severe symptoms in two and three cases after taking the quinidin, loss of consciousness, cyanosis and arrest of respiration, all yielding to stimulants. In the two fatal cases that have been published, the gravity of the insufficiency of the myocardium, rather than the drug, seems to have been responsible.

**Diathermy in Stomach Affections.**—Bordier comments on the constant and uniform stimulating action of diathermy on the chemical and motor functioning of the stomach in chronic gastritis, with either excessive or deficient acidity.

**Physostigmin in Internal Medicine.**—Moutier's experience with eserin in 120 cases has convinced him that this drug is the specific treatment for sympatheticotonia, just as atropin is the treatment for vagotonia. It acts on malaise but not on pain. It is most effectual in tachycardia, epigastric palpitation, discomfort after a meal, vertigo, nausea, in certain cases of migraine, of high blood pressure, and above all in what he calls solar plexus crises. He gives the drug by the mouth, before meals. From 30 to 80 or 100 drops a day of a mixture of 1 cg. of neutral eserin salicylate with 3.5 c.c. of glycerin (28 degrees); 1.5 c.c. of distilled water and alcohol enough to make 10 c.c. Fifty drops of this mixture equal 1 mg. of the alkaloid. A colored bottle should be used for it. There does not seem to be any cumulative action from the eserin; some of his patients have taken it for months without interruption. The sulphate can be used instead of the salicylate. Signs of intolerance are lassitude, a sensation of stiffness of the spine and neck, asthenia, dizziness and a little nausea. He has never noted intolerance except on three or four occasions, and there never was vomiting or diarrhea. Atropin is the natural antidote to eserin.

Dec. 10, 1921, **11**, No. 50

*Ulceration with Cyanotic Edges. H. Gougerot.—p. 457.
*Nitritoid Crises and Anaphylaxis. E. Girbal.—p. 464.
Gangrene of Lung Arrested by Arsenical and Cured by Serotherapy. M. Perrin.—p. 466.

**Ulceration with Cyanotic Edges.**—Gougerot calls attention to the bad prognosis of ulcerations when the edges are cyanotic and purpuric. In the type with cyanotic ecthyma, disinfection is required, and in the type with necrosis from obliterating capillaritis, the aim should be mainly to ward off secondary infection, promote active circulation through the region, and treat the general cause for the ulceration.

**Toxic Effects of the Arsphenamins.**—Girbal thinks that we must discriminate between the nitritoid crises and the symptoms for which anaphylaxis is responsible in estimating the by-effects of arsphenamin treatment. The most practical method of warding off the anaphylaxis element is, he says, by injecting a small amount of the solution a few hours before the whole amount is injected.

## Presse Médicale, Paris

Dec. 21, 1921, **29**, No. 102

*Secondary Infections in Typhoid. A. Rodet and S. Bonnamour.—p. 1009.

**Secondary Infections in Typhoid.**—Rodet and Bonnamour were surprised at the numbers of cases of typhoid in their service at Lyons in which secondary infection was found. It modified the clinical picture and the reaction to serotherapy. Of the five with the enterococcus or streptococcus in the blood, four died and two of the eight with the staphylococcus or tetragenus, and the course in those who recovered was exceptionally long, with many complications. These and other cases testified to the direful action of secondary infection in typhoid, and explain the resistance to serotherapy. The necropsy findings suggested that only the lesions in the

small intestine are the work of the typhoid; for the ulcerations in cecum, colon and rectum, superposed infection seems to be responsible.

Dec. 24, 1921, **29**, No. 103

*Hemoclasis in Paroxysmal Hemoglobinuria. M. Montagnani.—p. 1017.
*Scalp Flaps in Reconstruction of Face. P. Moure.—p. 1021.
Combined Riva-Rocci and Pachon Sphygmograph. A. Dubus.—p. 1022.
Cicutin in Therapeutics. L. Cheinisse.—p. 1023.

**Paroxysmal Hemoglobinuria.**—Among the points emphasized by Montagnani in his study of a typical case in a woman of 27, are the connection with syphilis; the improvement under specific treatment; the paroxysmal destruction of the erythrocytes within the vessels under the action of sudden chilling alone, and the chill, malaise, pains in joints, rapid drop in blood pressure, extreme leukopenia and change in the coagulation process—all phenomena testifying to anaphylaxis. In fact, he adds, the autoanaphylactic phenomena precede the hemolytic.

**Plastic Operations on the Face with Scalp Flap.**—The special feature of Moure's scalp flap is that it is cut very long, extending from the ear far past the median line. When twisted around to reconstruct the side of the chin, for instance, the flap thus has a very long and broad pedicle. This insures its nourishment until healing is complete. Then the pedicle can be severed close to its suture to the skin, and the pedicle can be replaced in its natural bed on the scalp. This bed is kept covered with an oil compress as long as it is kept open. The article is illustrated.

Dec. 28, 1921, **29**, No. 104.

*Cystic Disease of Bartholin's Gland. Bérard and Dunet.—p. 1029.
*Fever in Syphilis. M Chiray and A. Coury.—p. 1031.

**Cystic Disease of Bartholin's Gland.**—Bérard and Dunet describe a case of a benign cystic tumor in Bartholin's gland, analogous in every respect to cystic disease of the mammary gland.

**Syphilitic Fever.**—Chiray and Coury comment on the frequent exceptions to the rule that syphilis runs its entire course without fever. They add that both arsenic and mercury tend to reduce the temperature of the body. Fever during neo-arsphenamin treatment has never been observed, they say, except in the syphilitic or with trypanosomiasis, and a meningeal reaction to this drug is common in the syphilitic and is never noted in nonsyphilitics. Nearly every one presenting the so-called reinjection fever shows signs otherwise of neurosyphilis. The fever should not be labeled toxic under these conditions; it is more a focal reactivation phenomenon. The experiences related confirm anew that syphilis at any stage may develop fever.

## Progrès Médical, Paris

Oct. 1, 1921, **36**, No. 40

*Nuclein and Arsenic in General Paresis. P. Pregowski (Warsaw).—p. 461.
*Varices. Delbet.—p. 463.

**Nuclein and Arsenic in Treatment of General Paresis.**—Pregowski reports four years of this treatment in a total of 111 patients with general paresis. Of the 63 treated by 15 subcutaneous injections of nuclein, 27 per cent. seemed to improve, as also from 12 to 60 per cent. of those treated with arsenic in some form; 4 died in the nuclein group and 6 in the arsenic group.

**Varices.**—Delbet is inclined to believe that the tendency to varices develops early although they may not attract attention until middle life. The incompetency of the valves is primary, and for about fourteen years there is no varicose enlargement except toward night. The nourishment of the walls suffers at last, and they stretch. When the limb is raised to expel the blood, there is a depression instead of the former protrusion of the vein; the walls are so flabby they sink in from the atmospheric pressure when emptied of blood. Under a constricting band applied, reclining, to the thigh, not tight enough to arrest the arterial blood, the veins do not enlarge again as the subject stands. The valves then permit the passage of the blood from the superficial into the deep veins, the constriction, and likewise muscular exercise, favoring this. Hence walking has a favorable influence on varicose veins. The walls of the veins may retain their elasticity for a time after the valves have become incompetent, and a varicose ulcer may develop before the veins show signs of stretching. The ulcer improves when the subject reclines, with his leg raised. Treatment of the tendency to varices should be applied during this occult stage of the varices, before chronic edema, etc., have become installed.

Oct. 15, 1921, **36**, No. 42

*Functional Signs of Pulmonary Tuberculosis. E. Sergent.—p. 483.
Medicolegal Aspect of Crimes Against Decency. Laignel-Lavastine.—p. 486.

**The Functional Signs of Pulmonary Tuberculosis.**—Sergent refers to adults alone, and recalls that pain on pressure of the apex region is instructive, and above all, pain on pressure of the inner portion of the supraspinous fossa, especially when unilateral. Neuritis of the phrenic nerve, a painful point in the epigastrium from displacement of the lower ribs by emphysema, and mydriasis on the diseased side, are all instructive signs of tuberculosis. The mydriasis with incipient tuberculosis may be latent, but it may be induced artificially. As the disease progressed, he found that the mydriasis yielded to myosis as the nerve fibers became paralyzed. Unrecognized whooping cough and hyperthyroidism may be mistaken for tuberculosis, and hematemesis for hemoptysis. A menstrual hemoptysis is by no means always symptomatic of congestion in a tuberculous lesion. One healthy nurse wounded in the lung by a scrap of shell had vicarious hemorrhage from the lungs each month and none from the uterus. Hemoptysis from high blood pressure alone was mistaken for tuberculosis in several cases, and the subjects sent to a mountain climate which merely aggravated their hypertension. On return to sea level, with proper treatment, there was no further hemoptysis. The dyspnea in tuberculosis seems to be proportional to the degree of toxic action rather than to the extent of the lesions. The dyspnea may be latent, but may be rendered manifest by tests of respiratory function under roentgenoscopic control or spirometry. The resistance of the heart to effort is instructive, but it has to be estimated with an eye to the respiratory capacity, or it may prove misleading.

Nov. 12, 1921, **36**, No. 46

Radium Treatment of Vascular Nevi. S. Laborde.—p. 531.
Neurofibromatosis. Sainton.—p. 533.
*Umbilical Discoloration with Internal Hemorrhage. Chifoliau.—p. 534.

**Umbilical Ecchymosis with Intra-Abdominal Hemorrhage.**—Chifoliau reports two cases in which discoloration of the navel region was observed in connection with extravasation of blood in the abdomen. In one of the women it accompanied an encysted retro-uterine hematoma from rupture of the tube. There had been metrorrhagia for three weeks although menstruation had been regular, and there had been no sharp pain. The other patient was a woman of 54 with torsion of an ovarian cyst, with some blood in the cyst and abdominal cavity.

Nov. 19, 1921, **36**, No. 47

*True and False Pigmented Syphilids in Neck. Gougerot.—p. 541.
Device to Locate Foreign Bodies. G. Paturet.—p. 543.
*The Surgical Menopause. Dalché.—p. 545.

**Pigmented Syphiloids in the Neck.**—Gougerot insists that the conditions in the neck which resemble pigmented syphilids are not always due to syphilis. A patch of keratosis, for instance, may keep the skin from tanning, and as the keratosis subsides a whitish or brownish area is left.

**The Surgical Menopause.**—Dalché emphasizes the difference in the symptoms that follow castration, according to the age. In young women, castration entails atrophy of the vulva, uterus and nipples, and the sudden surgical menopause reduces the resisting forces of other organs. In one girl of 18, there was headache after the castration; he ascribes this to congestion in the pituitary in connection with ovarian disturbance. Another developed symptoms suggesting suprarenal insufficiency. He has noted that the symptoms of the menopause are liable to return at the age of the natural menopause, or hyperthyroidism may develop, but they are liable to be ascribed to a nervous origin. He cites examples from his own practice of symptoms from liver, stomach, heart, aorta, etc., which he ascribes to the function-depressing influence of the castration, and which right themselves spontaneously in

time. Valvular and other disturbances at the menopause need not always be taken very seriously. After surgical castration, general hygiene should be enforced with special care, and organotherapy given as indicated.

## Revue Franç. de Gynécologie et d'Obstét., Paris

November, 1921, **16**, No. 11

Torsion of Large Hydrosalpinx. J. Mouchotte and A. Perrilliat.—p. 577.
*Uterine Myomas. E. Essen-Moeller.—p. 594.
Is the Surgical Era Closed in Gynecology? L. M. Pierra.—p. 597.

**Experiences with Uterine Myomas.**—This is a summary review of the uterine myomas treated between 1899 and 1921 at the women's clinic of the university of Lund. Of the total 1,633 cases, operative measures were applied in 700. There was malignant degeneration after the operation in 22 cases, including 14 in which no signs of cancer had been discovered at the operation. No reduction of the myoma was noted in 20 of the 103 cases treated with radium, but in 50 the uterus returned to normal size under it, and in 10 others nearly to this. In 32 of the total cases the ultimate outcome is not known.

## Revue de Médecine, Paris

July, 1921, **38**, No. 7-8

*Serodiagnosis of Plague. E. Joltrain.—p. 383.
Vascular Hypertension. C. Trunecek (Prague).—p. 403. Cont'n.

**Serodiagnosis of Plague.**—Joltrain expatiates on the value of the fixation of complement test for the detection of abortive and ambulant cases of plague, as well as in cases with an abnormally protracted course of the disease.

## Schweizer Archiv f. Neurol. u. Psychiatrie, Zurich

1921, **9**, No. 1

Regeneration in the Nervous System. E. Hedinger.—p. 3.
*Clinical and Anatomic Study of Apraxia. R. Brun.—p. 29.
*Pathogenesis of Tabes. H. Richter.—p. 65.
Study of Sense Perceptions. H. Doebeli.—p. 75.
*Electrodiagnosis of Tetany. P. Farbarge-Vail.—p. 91.
*Adiposis Dolorosa. F. Kaufmann.—p. 108.
Lethargic Encephalitis. L. Redalié.—p. 125.

**Apraxia.**—Brun relates that the Zurich institute for study of the brain contains serial sections of twelve apraxia brains, and of a number of other brains showing apparently identical conditions but there had been no or briefly transient symptoms of apraxia during life. He compares this material with clinical cases of apraxia. The article, which is in German, is to be continued.

**Pathogenesis of Tabes.**—Richter describes (in French) the primary settling of the spirochetes in the poorly vascularized sheath of the root of the spinal nerve. The tissues react with granulation to the irritation from the spirochetes, and the nerve suffers from the formation of this pathologic tissue, the lesions in the nerve always corresponding to these granulous elements.

**Electrodiagnosis in Tetany.**—Vail declares that decalcification, rachitis, tuberculosis, osteomalacia and senile changes do not modify the formula of the electric excitability of nerves in the tetany sense. It is absolutely pathognomonic of tetany.

**Adiposis Dolorosa.**—Kaufmann reports a case in a neuropathic woman and a second case in which a tendency to obesity could be traced in the female line for three generations. The adiposis was more diffuse in the first case, beginning at 19. In both cases the pains were not spontaneous, but occurred only on deep pressure of the fatty swellings. General weakness of body and of mental impressions became evident in both in the course of the disease. A hemorrhagic tendency was also manifest. General improvement followed thyroid treatment, but the essential adiposis dolorosa did not seem to be modified by it.

## Schweizerische medizinische Wochenschrift, Basel

Nov. 24, 1921, **51**, No. 47

*Roentgen-Ray Treatment in Internal Medicine. M. Lüdin.—p. 1081.
*Pregnancy After Roentgen Exposures of Uterus. M. Steiger.—p. 1084.
*Pernicious Anemia Not An Independent Disease. I. Zadek.—p. 1087.
*Tests of Gastric Functioning. J. Custer.—p. 1091. Conc'n No. 48, p. 1115.

**Roentgen-Ray Treatment in Internal Medicine.**—Lüdin has had opportunity to apply roentgen exposures in 600 nonsurgical cases. The effect was amazingly good in the 6 cases of erysipelas. In each case the fever promptly subsided and the erysipelas ceased to spread and soon disappeared. With inoperable internal cancer, he obtained results with no recurrence for up to two years to date only with malignant goiter, sarcoma of the tonsils, and in one case of a retronasal tumor. A favorable influence was evident in certain cases of exophthalmic goiter; the earning capacity was restored even though some of the symptoms persisted. In 5 cases requiring operative measures later, tough adhesions were found in 2, but no adhesions in the others. Tuberculous peritonitis responded very favorably; roentgenotherapy is an excellent means of treating this form of tuberculosis, with or without ascites. Preliminary tapping is not necessary. Active pulmonary tuberculosis is a contraindication; all died of the 7 with this complication. The outcome was negative or an aggravation in pernicious anemia, chlorosis, pulmonary tuberculosis, Banti's disease, acute myeloid leukemia, chloroma and myeloma. Excellent results were obtained in chronic myeloid leukemia, persisting up to four years, with earning capacity restored; also, to a lesser degree, in chronic lymphatic leukemia. Necropsy in some cases of malignant granuloma confirmed the complete cure of the rayed lesions. By systematic exposures of all the foci from which the lymphogranuloma tissue may proliferate, it may be possible to eradicate the disease entirely; he has now made it the routine practice to apply the rays not only to the enlarged glands but to all the glands.

**Pregnancy After Roentgen Exposures.**—Steiger's verdict from the evidence presented by the literature and his own experience is that with a single exposure, even with a dose large enough to bring amenorrhea, no injury need be apprehended on the ovum developing later from a follicle that has escaped the action of the rays. No injury need be apprehended if the exposure is made toward the end of a pregnancy, but there are grounds for fearing malformations in the fetus if conception has already occurred at the time of an intensive exposure.

**The Blood Findings During Remissions of Pernicious Anemia.**—Zadek trephined the tibia and scooped out a little of the marrow under local anesthesia, plus a whiff or two of ethyl chlorid. This procedure, repeated on eight patients with pernicious anemia, showed practically normal conditions in the bone marrow during periods of remission of the symptoms. The blood picture varied in the same way. This testifies, he asserts, that pernicious anemia is not a specific primary disease of the bone marrow, but is merely the effect of the action of some toxin, and fluctuates with the varying intensity of the toxic action.

**Investigation of Conditions in the Stomach Without the Stomach Tube.**—Custer deplores that so little use is made of the tests of stomach functioning which do not require the stomach tube. The general practitioner misses very valuable aid in estimation of stomach disturbances when he neglects these functional tests. Since 1905, Custer has been applying systematically the methylene blue, the iodoform and the salol tests, in addition to the desmoid test, under roentgen and clinical control, and expatiates here on the light they throw on the secretory and motor functioning of the stomach as the blue and the salol appear in the urine afterward. A pill of 0.05 gm. methylene blue, weighted with a little bismuth, is taken at the beginning of dinner. The dissolved 1 gm. of salol is sipped throughout the dinner. Its appearance in the urine is heralded by a violet tint when ferric chlorid solution is dropped in. He gives minute details of the tests and interpretation of the findings.

Dec. 1, 1921, **51**, No. 48

*Biology of Syphilis. Dind.—p. 1105.
Action of Carbonated Baths at St. Moritz. G. Liljestrand and R. Magnus.—p. 1109.
Erythema Nodosum and Tuberculosis. Demiéville.—p. 1110.
Pathogenesis of Malignant Syphilis. M. Umansky.—p. 1112.

**Biology of Syphilis.**—Dind points to the variable length of the period of incubation, the fact that there are absolutely no symptoms during this phase, and the fact of the extremely rapid development of the chancre to its full and stationary state. These and other data cited confirm, he says, that the

chancre is not the work of the parasites, but is the allergic reaction to the invasion of the spirochetes. The larger the chancre, the more pronounced the skin lesions, the stronger the defensive reaction, and hence the milder the course of the syphilis. It has always been his experience that the graver cases of syphilis were those with small chancres and few manifestations in the skin. The gravity of neurosyphilis may be due to the fact that the organic defense in the nervous system is inferior to that which the skin can offer.

Dec. 15, 1921, **51**, No. 50

*The Goiter Question. G. Hotz.—p. 1153.
Adaptation of Parasites. III. B. Galli-Valerio.—p. **1155.**
*Tuberculous Myocarditis. R. Massini.—p. 1156.
*Idem. W. Lüscher.—p. 1158.

**The Goiter Question.**—Hotz knows of goiter families in which some of the children are of the cretin type and others of the exophthalmic goiter type, and the thyroid in all shows apparently identical pathologic anatomic changes. This testifies, he says, that cretin degeneration may be a consequence of excessive thyroid function. It is evidence that the functioning is perverted. Removal of the thyroid and ligation of the larger arteries improved conditions in the cretin children as well as in the exophthalmic goiter children.

**Tuberculous Myocarditis.**—Massini found tubercle bacilli in the myocardium of a woman of 68 who had exhibited symptoms of chronic myocarditis for some time, but never anything to suggest tuberculosis in any form otherwise, not even at necropsy. Lüscher found evidences of tuberculous myocarditis in the cadaver of a man of 30 and woman of 45, and guinea-pigs inoculated from these hearts not only developed tuberculosis but showed signs of slight myocarditis as if some special heart-attacking strain was involved. In the male cadaver no manifestations of tuberculosis could be discovered outside of the heart.

Dec. 29, 1921, **51**, No. 52

*Gallstone Disease. L. Michaud.—p. 1201.
*Surgery of Biliary Passages. G. Hotz.—p. 1214. Idem. K. Henschen. p. 1222.
History of Idem. E. Veillon.—p. 1240.
Electric Accidents. H. Jaeger.—p. 1250.
Antethoracal Artificial Esophagus. Fonio.—p. 1261.
Autograft After Resection of Humerus. A. Jentzer.—**p. 1261.**
Malformations of Patella. W. Odermatt.—p. 1263.
Latent Bilateral Pleural Empyema. R. Schweizer.—p. 1264.
Fracture of Humerus. H. Paschoud.—p. 1265.
Huge Ovarian Cysts. E. Baumann.—p. 1272.

**Gallstone Disease.**—Michaud, as professor of clinical medicine, was asked to address the recent Swiss surgical congress on cholelithiasis from the internist standpoint. He declares that the gallstones are only one symptom and often not the most important symptom of cholelithiasis. In his service at Lausanne the cholesterin content of the blood was found abnormally high in many cases of cholelithiasis, jaundice and chronic nephritis, but it was also found high in many other conditions, in arteriosclerosis, chronic myocarditis, etc., and cannot be depended on even to distinguish between a gastric ulcer and gallstone disturbance. He presents evidence to sustain the assumption that the liver is the source of the secretion of the cholesterin in the blood. Hypercholesterinemia is an adjuvant factor in production of gallstones, but other multiple conditions are involved besides this and besides infection, stagnation of bile, and inflammation, although these are the main factors. Tests of liver functioning must therefore aim to show the status of the different functions of the liver involved; knowledge of its "global functional capacity" is not very instructive. Fibrin, a product of inflammation, is an irreversible colloid. The calculi from inflammation will thus contain irreversible colloids, and hence it is problematic whether any measures will be able to dissolve such concretions. There is evidence on hand, however, of arrosion of the surface of certain gallstones, and resorption of the dissolved fragments. Hence combating inflammation aids in warding off production of insoluble gallstones, and in rendering conditions more favorable for resorption, if this is possible, which many with the largest experience still deny. A mixed diet is the best of all cholagogues, he adds, and this is possible even with foods tending to check production of cholesterin (fatless meat, skimmed milk, cereals, green vegetables and fruits). The clinical and empiric benefit from a course of Vichy or Karlsbad waters at the spa or at home is well established, but science cannot explain their mode of action. Our aim is to reduce stasis, infection and hypercholesterinemia, and tranquilize the gallbladder, not to expel the gallstones. Operative treatment is indicated in the acute and chronic cases rebellious to internal measures.

**Surgery of the Biliary Passages.**—Hotz' charts show the outcome in 1,856 operations for cholecystitis or cholelithiasis in the last ten years by forty-two Swiss surgeons, with 192 for tumors or other causes. His conclusions are all in favor of early operating, without wasting too much time on internal measures in otherwise healthy persons, especially the young. After 40 the chances for a successful operation grow less. Henschen emphasizes the recent trend to early operating, refraining from draining, and the increasing preponderance of cholecystectomies over conservative operations. He discusses the diagnosis from the functional, bacteriologic and radiologic standpoints, with a clinical and physiologic study of operative procedures. Five large plates accompany his article, showing the anatomy, etc., of the region. He says that he has never found any evidence of development of biliary cirrhosis of the liver after ectomy, but when the pancreas is involved, a cyst may develop in the pancreas. Hence, in these pancreas cases, drainage of the common bile duct may be exceptionally indicated to prevent this. Postoperative peritonitis from various causes was responsible for 58 of the total 199 deaths in the 1,856 cases studied; cholemic hemorrhage for 11, and heart failure in 30. For the latter, injury from the anesthetic; extreme drop in blood pressure during the operation from chilling of the abdomen or too brusque manipulation of the common bile duct or portal vein, were responsible, or else embolism in the right heart from pressure on the liver during the operation, or fat embolism in the heart vessels when fat tissue was crushed. Absorption from necrotic tissues or blood clots may induce death as also absorption of toxins from bacteria migrating into a focus of necrosis. The psychologic imponderables may likewise turn the scale. Among the prophylactic measures advocated is the prevention of harmful reflex action by procaining the hepatoduodenal ligament; control of the blood pressure while operating, and not allowing latent insufficiency of the heart to escape detection beforehand. Postoperative pneumonia was responsible for 28 of the 199 deaths. It is evident, he says, that direct migration of the bacteria through diaphragm and pleura is responsible in some cases. In others, septic, fat and parenchyma cells are evidently swept to the lungs by the blood. In 9.5 per cent. (11 cases) no cause could be discovered for the sudden death, but it is possible that an acidosis might have resulted from the sudden loss of alkali reserves. Sodium bicarbonate given systematically beforehand has seemed to ward this off in his experience.

## Annali d'Igiene, Rome

September, 1921, **31**, No. 9

*Microscopy in Epidemic Encephalitis. G. Volpino and G. Graziadei.—p. 533.
*Isolation of Trypanosomes from Blood. L. Sani.—p. 536.
Metachromatic Granules of Diphtheria Bacillus. Racchiusa.—p. 545.
Tellurium and Selenium as Bactericides. A. Cavazzuti.—p. 551.
*Reactions of Culture Mediums. V. Puntoni.—p. 555.

**Microscopic Findings in Epidemic Encephalitis.**—Volpino and Graziadei give a few illustrations of granulated bodies which they have found numerous close to the capillary walls in cases of epidemic encephalitis. They take stains differently from the natural bodies which they resemble, as they describe.

**Isolation of Trypanosomes from the Blood.**—Sani was unable to obtain the trypanosomes by physical or chemical procedures, in a state suitable for use as an antigen. He therefore inoculated dogs with the trypanosomes, and from their blood obtained trypanosomes, an antiserum, and erythrocytes for the hemolysis test.

**Adjusting the Reaction of Culture Mediums.**—Puntoni describes the various means for modifying the reactions of the mediums in bacteriology, and compares their efficacy, especially for the micro-organisms which are the most exigent.

## Archivio per le Scienze Mediche, Turin

1921, **44**, No. 1-2

Origin and Significance of Starchy Bodies Found in Nervous System. C. Gamna.—p. 1.
*Cell Count in Wound Secretions. L. Torraca and M. Cotellessa.—p. 21.
*Primary Carcinoma of Cystic Duct. G. Satta.—p. 32.
*Histologic Findings in Frogs After Extirpation of Liver. V. Ronca.—p. 45.
*Salivary Secretion at High Altitudes. A. Aggazzotti.—p. 60. Idem.—p. 84.

**Cell Count in Wound Secretions.**—As it is rare to encounter wounds healing by second intention in modern clinics, Torraca and Cotellessa give details of their research on ten guinea-pigs. The polynuclear leukocytes formed from 85 to 93 per cent. of the total at first, but gradually yielded to the mononuclears which finally formed from 16 to 27 per cent. both in the wounds healing naturally and those irrigated with Dakin's solution. In wounds exposed to sunlight, they reached 33 or 34 per cent. The bacteria did not disappear, ten or more micro-organisms being found in each microscopic field to the very last. They did not seem to interfere with the healing process, so they must have been more or less non-virulent.

**Primary Cancer of Cystic Duct.**—In the ten cases compiled by Satta, all the patients were women except two, including the case in a man of 44 which he describes here. In about 50 per cent. there was a history of gallstone colics. In his case the glands in the left supraclavicular fossa were enlarged, and there was no jaundice, but jaundice was pronounced in all the other cases on record except one.

**Histologic Changes After Extirpation of Liver.**—Ronca gives a plate of photomicrograms from the viscera, nervous system, etc. of frogs. The action of the toxins, which normally are neutralized by the liver, was least evident in the intestines and most pronounced in the kidneys.

**The Salivary Secretion at High Altitudes.**—In the first article Aggazzotti describes his findings in regard to the activity of secretion of saliva and its concentration during exercise in the mountains. In the second he discusses the viscosity and the reaction of mixed saliva under the same circumstances, and cites fifty-seven publications on the physiology of secretion at high altitudes.

## Pediatria, Naples

Dec. 1, 1921, **29**, No. 23

Cholesterin in Cerebrospinal Fluid. S. Fabris.—p. 1057.
Variations in Temperature of Infants' Skin. F. Fonzo.—p. 1065.
*Myatonia Congenita with Inherited Syphilis. M. Flamini.—p. 1081.

**Congenital Myatonia.**—Flamini compares a case of Oppenheim's disease in a new-born syphilitic infant with the literature on the subject. Several photomicrograms show the important lesions in the cerebellum, brain and spinal cord.

## Policlinico, Rome

Dec. 12, 1921, **28**, No. 50

*Technic for Exclusion of Pylorus. G. Caminiti-Vinci.—p. 1683.
*Pancreatitis Consecutive to Gastric Ulcer. B. Masci.—p. 1685.
Atony of Laryngeal Muscle in Malaria. G. Pansini.—p. 1688.
Present Status of Treatment of Diabetes. G. Aiello.—p. 1689.

**Exclusion of Pylorus for Gastropyloric Cancer.**—Vinci confirms that, when gastrectomy is contraindicated, surprisingly good results may follow gastro-enterostomy plus exclusion of the pylorus. He extols Parlavecchio's method as the best for this, and relates that in five cases of gastropyloric cancer treated in this way, one woman of 63 survived in good health for nearly five years. Then the tumor began to cause symptoms again and she died five and a half years after the operation. The interval in two other cases is four years and fourteen months to date, and both patients are apparently in the best of health. The others have been lost track of. The pylorus is tied off with a piece of tape (*nastro*) 15 mm. wide, passed through small openings in the greater and lesser omentum to encircle the stomach above the mass of the tumor. The tape is drawn just tight enough to close the lumen without arresting the circulation. The ends are not tied together but are sutured with silk, and serosa and muscle are drawn up over it. The whole takes less than five minutes, and the latest roentgenograms confirm that the passage into the pylorus is absolutely and permanently closed. In all his cases the cancer mass became progressively reduced in size thereafter.

**Pancreatitis Consecutive to Gastric Ulcer.**—A perforated duodenal ulcer had been sutured in the man of 29 but six months later he returned with a gastric ulcer which was treated by gastro-enterostomy and ligation of the pylorus with a strip of periosteum from the tibia. He returned to the hospital after a few years of clinical health presenting symptoms of acute pancreas insufficiency, and necropsy showed that the stomach ulcer had spread to involve the adjacent head of the pancreas, causing sclerosis in this limited region.

Nov. 1, 1921, **28**, Medical Section No. 11

*Temperature Sense and Trophic Lesions. P. Albertoni.—p. 457.
*Tumors in Temporal Lobe. F. Costantini.—p. 468.
*Parkinsonism. L. De Lisi.—p. 484.

**Temperature Sense, Etc., in Syringomyelia, Etc.**—Albertoni's research in Raynaud's disease has been supplemented by a similar study of syringomyelia, sclerodermia and lateral amyotrophic sclerosis, as he describes here. His tests were made with heat and cold applied to different points in the skin, and compared with similar findings in the healthy.

**Tumors in the Temporal Lobe.**—Constantini concludes from two cases reported in detail that general symptoms occur early with a tumor in the temporal lobe, especially mental disturbances, which may vary widely from case to case. Not one of the focal symptoms is constant, and there may even be nothing to call attention to the temporal lobe as the seat of the process. The more important of the focal symptoms is aphasia in its various forms.

**Parkinsonism.**—De Lisi tabulates the details of ten cases of parkinsonism following epidemic encephalitis in recent years. The ages ranged from 13 to 39, and the parkinsonism had developed after a period of apparent convalescence. As autumn approached the parkinsonism became installed and has been slowly progressive or stationary since. Only one of the patients has shown any tendency to improvement of the condition. This is a young woman and there is now only a persisting diffuse rigidity. There is general tremor only in one of the ten cases but tremor of the tongue and catalepsy are common. The disturbances are strictly motor, not sensory, but sialorrhea is profuse.

Nov. 15, 1921, **28**, Surgical Section No. 11

*Hematuria with Hydronephrosis. G. Baggio.—p. 465.
*Chronic Traumatic Hygroma. C. F. Bianchietti.—p. 485.
*Mesentery Cyst. M. Novi.—p. 503.
*Decompressive Craniectomy. B. Merlino.—p. 515.

**Hematuria in Hydronephrosis.**—Baggio's review of the literature and personal experience has shown that hematuria is by no means rare with hydronephrosis, and is readily explained by the hampering of the local circulation. It is not enough to draw the urine; the condition must be remedied to remove so far as possible the factors impeding the free flow of blood. The hematuria may precede, accompany or follow the hydronephrosis attack, and there may be a caput medusae. The obstacle to the circulation is generally, he thinks, to be sought in some compression or kinking of or traction on the renal veins, and this is not affected by mere nephrotomy.

**Traumatic Hygroma.**—Bianchetti discusses the clinical features, pathologic anatomy and treatment of chronic traumatic hygroma.

**Cyst in the Mesentery.**—Novi successfully removed the large cyst in the mesentery of the woman of 47. The diagnosis had been ovarian cyst. The stem of the cyst was as large as a thumb.

**Decompressive Craniectomy.**—Merlino expatiates on the advantages of Parlavecchio's technic which does not require an opening larger than 3 by 3 cm. A horse-shoe flap is first cut down to the bone and turned back toward the neck. A square gap is then cut in the skull, and through this a crucial incision is made in the dura. Each one of the four flaps resulting from the X incision is turned back over the edge of one side of the opening in the skull, and each flap is sutured to the pericranium around. This prevents irregular growth of bone at the edges of the gap, while the dura flaps can be replaced and sutured at any moment.

## Riforma Medica, Naples

Nov. 19, 1921, **37**, No. 47

Malformation of Urethra and Testicle. L. Torraca.—p. 1093.
*Cholesterin Content of Blood. C. Alessandri.—p. 1095.
Experiences with Wassermann Test. C. Martelli.—p. 1099.
*Action of Lymph Gland Extract. A. Mazzarella.—p. 1103.
Technic for Appendicectomy. O. Cignozzi.—p. 1104.

**Cholesterinemia.**—Alessandri reports the findings in twenty-two patients with various diseases in regard to the cholesterin content of the blood and its fluctuation under different conditions. He gives a table of the findings also in ten cases half an hour after epinephrin had been injected subcutaneously or by the vein. The epinephrin seemed to mobilize the cholesterin deposits.

**Action of Lymph Gland Extract.**—Mazzarella states that an extract of lymph glands taken from different parts of the body and from different animals displays an action antagonistic to that of epinephrin. Injected into the peritoneum of white mice, rabbits and guinea-pigs, it induced constantly an increase in the numbers of lymphocytes and of eosinophils. The eosinophilia occurs more promptly, is more intense, and does not last so long as the eosinophilia which follows stimulating the vagus with pilocarpin. The gland extract thus seems to have a hormone action, depressing the sympathetic system.

Dec. 3, 1921, **37**, No. 49

*Hygiene of the Mind. L. Bianchi.—p. 1141.
*Isolation of Pneumococcus and Enterococcus. N. Pane.—p. 1147.
Toxic Action of Vinilamin. R. Luzzatto and A. Levi.—p. 1148.
Recent Literature on Surgery of Bones. Aievoli.—p. 1150.

**Hygiene of the Mind.**—In this opening lecture of the course on nervous and mental diseases, Bianchi emphasized among other things the stabilizing effect of work on the mind, and deplored the prevailing conception that the fewer hours we have to work the better off we are. "This is the view which politicians and labor leaders—to promote their own selfish interests—are impressing on the public. The result is that the shortening of the hours of labor, instead of giving leisure for home duties and family life, is deteriorating character and mental health as the free hours are devoted to loafing. Work—the great stabilizer of the nervous system—is abhorred and shirked more and more—a sad perversion of the ideal aimed at in the early agitation for the eight hour day." Nervous disease is becoming more and more prevalent, and the number of the insane has trebled in the last twenty years. Physicians should be on the lookout for anomalies in character as well as in the blood or tissues. He says that his forty years of practice have demonstrated that anomalies in character in children can be effectually combated by wise management and hygiene, either in the home or with some wise and patient teacher. Those children that failed to get this favorable environment or were sent to a large school where all were treated alike, had their abnormal traits intensified, and grew up to be candidates for the reform school or asylum.

**Differentiation of the Pneumococcus and Enterococcus.**—Pane states that the enterococcus is the only bacterium in specimens of stools that survives desiccation in the incubator at 37 or 38 C. for up to twenty days. Pneumococci in sputum also resist desiccation in this way for several days, but never more than ten. When taken from the incubator, both these germs develop well in bouillon with 1 per cent. glucose.

## Rivista Critica di Clinica Medica, Florence

Sept. 25, 1921, **22**, No. 27

*Tests of Vegetative System in Typhoid. C. Alessandri.—p. 313. Cont'n.
Activation and Attenuation Methods in Treatment of Pulmonary Tuberculosis. G. Brecchia.—p. 319. Cont'n.

**Drug Tests of Vegetative Nervous System in Typhoid.**—Alessandri injected tentatively atropin, pilocarpin, physostigmin (eserin), or suprarenal, thyroid or pituitary extract on different days during typhoid in six cases. Epinephrin was the only substance that elicited a similar response in all, although it was less pronounced the higher the temperature and the later in the disease. The response to atropin and the other drugs differed widely in the different patients, as he describes in detail, with theoretical deductions.

Oct. 15, 1921, **22**, No. 29

Protein Content of Exudates. Natali.—p. 337. Conc'n No. 30, p. 349.

Nov. 5, 1921, **22**, No. 31

Serologic Tests in Syphilis of the Third Stage. C. Sestini.—p. 361.

Nov. 15, 1921, **22**, No. 32

*Fever with Otherwise Latent Tuberculosis. C. Cantieri.—p. 373.

**Paroxysmal Fever in Latent Tuberculosis.**—Cantieri cites instances of prolonged fever without distinct physical signs, and necropsy shows some circumscribed focus in the glands, the apices normal. Or there may be a miliary diffusion of lesions detectable only by the roentgen ray. Or there may be some slight physical findings at the apex which are not explained by the necropsy. Or a focus in a bronchial gland may force an opening into the air passages, with tubercle bacilli to be found constantly in the sputum thereafter. Many of these cases of prolonged fever are mistaken for intestinal disease, and drag along for months and years with treatment exactly the reverse of what is needed. Some ascribe importance to discovery of enlarged glands, especially in the axilla on the same side. Persisting anorexia is also instructive, as also loss in weight, spleen of normal size, tachycardia, orthostatic albuminuria, and leukocytosis, exclusion of other diseases, discovery of a source for tuberculosis in the environment, possibly in some elderly relative with chronic bronchitis never suspected of tuberculosis.

Mere suspicion of latent tuberculosis should guide treatment, instead of treating for the imaginary intestinal affection. Inadequate nourishment in the tuberculous may increase the fever. Mya teaches that the autophagism—which goes on when sufficient nourishment is not being provided from without—adds to the production of toxic waste, disturbing heat production and radiation. The temperature may rise a little on change from a fluid to a semisolid diet, but this is only transient. The fever with latent tuberculosis may occur only occasionally and last only a day or two or several days. In one young girl there were periods of fever up to 39 or 40 C. remittent or intermittent, for several months, with no other findings except endometritis, until finally an apical process became manifest, and the girl did not survive many months. This girl's sister developed later a similar series of waves of fever at intervals of two or three weeks, but they gradually grew less frequent and less severe. One boy of 11 had a period of fever ascribed to digestive disturbance. The fever returned later and some error in diet was incriminated. The boy was frail, and notwithstanding the most careful diet the waves of fever returned, each lasting for one or two days. Finally signs of pleurisy and pericarditis were discovered, but the condition has been improving of late. He cites a number of other examples of this paroxysmal febrile cryptotuberculosis.

## Archivos Españoles de Pediatría, Madrid

October, 1921, **5**, No. 10

*Early Diagnosis of Inherited Syphilis. G. Sisto.—p. 577.
Access Through Rectum to Appendiceal Abscess. V. Juaristi.—p. 592
Hemisection for Astragalectomy. Idem.—p. 593.

**Early Diagnosis of Inherited Syphilis.**—Sisto reiterates that inherited syphilis is almost certain when a young infant cries incessantly. Often incessant crying may be the only symptom of the disease. He ascribes it to the pain in the bones; they are tender on pressure and the pain is increased by movements, and nothing except specific treatment for syphilis will quiet the child.

## Brazil-Medico, Rio de Janeiro

Nov. 5, 1921, **2**, No. 17

*Uncinariasis in Southern Brazil. W. G. Smillie.—p. 239. Conc'n in No. 18, p. 261.
Stomach Disease from Practitioner's Standpoint. O. Clark.—p. 244.

**Hookworm in Southern Brazil.**—This is the fourth communication on this subject by the director of the Hygiene Institute at S. Paulo. Some of the tables given here confirm anew the influence of bare feet on hookworm infestation. In one family, for instance only 40 specimens of hookworm were found on an average in the 6 members who wore shoes while 226 was the average in the 4 barefoot children. In a group of workmen, 148 barefoot workers averaged 255 hookworms while the 29 that wore shoes averaged less than 50